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Turn the page for a "Quick Look" at this issue

a QUICK LOOK at this issue

FORECAST–1959 REVIEW–1958

New U.S. Well Completions (Page 91)

Will increase 1,944 wells—4 percent over the 1958 total—to 50,275 wells.

Decreased 5,019 wells—10.1 percent below 1957 total of 53,783 new completions.

Total Footage (Page 91)

Will increase 7.2 million feet—3.7 percent more than 1958 total—to 203 million feet of hole.

Decreased 25 million feet—11.3 percent below the 1957 total of 220.8 million feet of hole.

Canadian Wells (Page 174)

Will increase 43 wells—1.5 percent over 1958 total—to 3,050 completions.

Decreased 402 wells—11.8 percent below 1957 total of 3,409 completions.

Drilling Outside U.S. and Canada (Page 170)

Will increase 281 wells—more than 6 percent over 1958 total—to 5,080 wells.

Decreased 740 wells—13.4 percent from 1957 total of 5,539 wells.

U.S. Crude Production (Page 99)

Will increase 573,000 barrels daily—8.5 percent over the 1958 average—to 7,280,000 barrels per day.

Decreased 463,000 barrels daily—6.5 percent less than the peak of 7,170,000 barrels per day in 1957.

Productive Completions (Page 111)

Will increase 1,127 wells—3.9 percent over 1958—to 29,906 producers.

Decreased 3,060 wells—6.6 percent below the 31,839 producers completed in 1957.

World Crude Production (Page 107)

Will increase 1,547,000 barrels daily—up 8.5 percent over the 1958 average—to 19,650,000 barrels per day.

Increased 487,000 barrels daily—up 2.8 percent over the 1957 average of 18,103,000 barrels per day.

U.S. Wildcatting (Page 122)

Will increase 328 wells—3.4 percent over 1958 total—to 10,090 wells.

Decreased 1,621 wells—14.2 percent below 1957 total of 11,383 wildcats.

Artificial Lift (Page 133)

Will increase 25,104 wells—5 percent over 1958 total—to 531,501 wells.

Increased 11,114 wells—2.3 percent over 1957 total of 495,283 artificial lift wells.

Natural Gas Liquids (Page 134)

Will increase 34,000 barrels per day—4 percent over 1958 average—to 832,000 barrels per day.

Decreased 10,000 barrels per day—1.2 percent below 1957 average of 808,000 barrels per day.

Supply of All Oils (Page 87)

Will increase 517,000 barrels per day (including imports)—5.6 percent over the 1958 average—to 9,671,000 barrels per day.

Decreased 145,522 barrels per day—4.2 percent below the 1957 average of 9,553,000 barrels per day. This was first decrease in total new supply since 1954.

Demand for All Oils (Page 87)

Will increase 374,000 barrels per day—4.3 percent over 1958 average—to 9,646,000 barrels per day.

Decreased 114,100 barrels per day—1.2 percent below 1957 average of 9,386,000 barrels per day.

Crude Runs to Stills (Page 174)

Will increase 500,000 barrels per day—6.8 percent over 1958 average—to 8,136,000 barrels per day.

Decreased 314,000 barrels per day—3.9 percent below 1957 average of 7,919,000 barrels per day.

Imports (Page 95)

Will decrease 83,000 barrels per day—6.5 percent from 1958 average—to 1,290,000 barrels per day.

Increased 367,000 barrels per day—26.7 percent more than the 1957 average of 1,373,000 barrels per day.

Exports (Page 95)

Will decrease 8,000 barrels per day—3 percent below 1958 average—to 258,000 barrels per day.

Decreased 164,000 barrels per day—38 percent below 1957 average of 430,000 barrels per day.

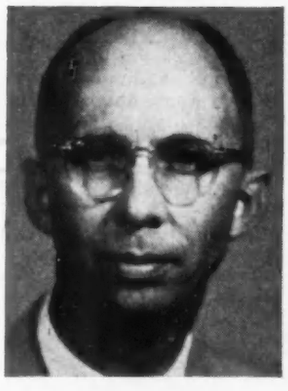
Stocks of All Oils (Page 97)

Will increase 9.1 million barrels—1.2 percent over the 1958 total—to 799.1 million barrels.

Decreased 51.3 million barrels—6.1 percent below the 1957 total of 841.3 million barrels.

Don Kliewer named editorial director of WORLD OIL

DONALD E. KLIEWER has been named editorial director of WORLD OIL. Kliewer succeeds Warren L. Baker, who has been appointed executive vice president of the American Association of Oilwell Drilling Contractors.



Donald E. Kliewer

Kliewer, who has been editor of WORLD OIL since 1957, joined the staff in 1951 as international editor. He has traveled abroad extensively. His reports on oil industry developments have led him to Europe, the Middle East and North Africa, in addition to Canada and Mexico.

In 1952, during a tour of the Middle East, he visited oil centers in Saudi Arabia, Bahrain Island, Kuwait and Iraq. This trip resulted in a series of articles which appeared that year in WORLD OIL. Since joining WORLD OIL, Kliewer has specialized in studying the oil industries of Russia and satellite Europe. His evaluations have appeared annually in the special International Outlook Issue of WORLD OIL, which is published each August 15.

In addition to writing special features and editorials on specific industry trends and problems, Kliewer has been a frequent speaker before various industry groups, including American Petroleum Institute chapters throughout Texas, Desk and Derrick Club and a number of civic, social and religious groups.

Cecil Smith, who is Gulf Publishing's research director, will handle WORLD OIL's industry statistics and trends. Smith, who served as WORLD OIL's statistical editor for 12 years, has worked closely with Baker for more than 10 years in developing statistics and industry forecasts.

Kliewer, a native of Stamford, Texas, attended high school in Longview and is a graduate of The University of Texas. During school vacations, he worked in the East Texas oil field as a roughneck, on pipe line gangs and as a gager. He entered newspaper work in 1941, and was assistant news editor of The Houston Post when he joined WORLD OIL's staff.

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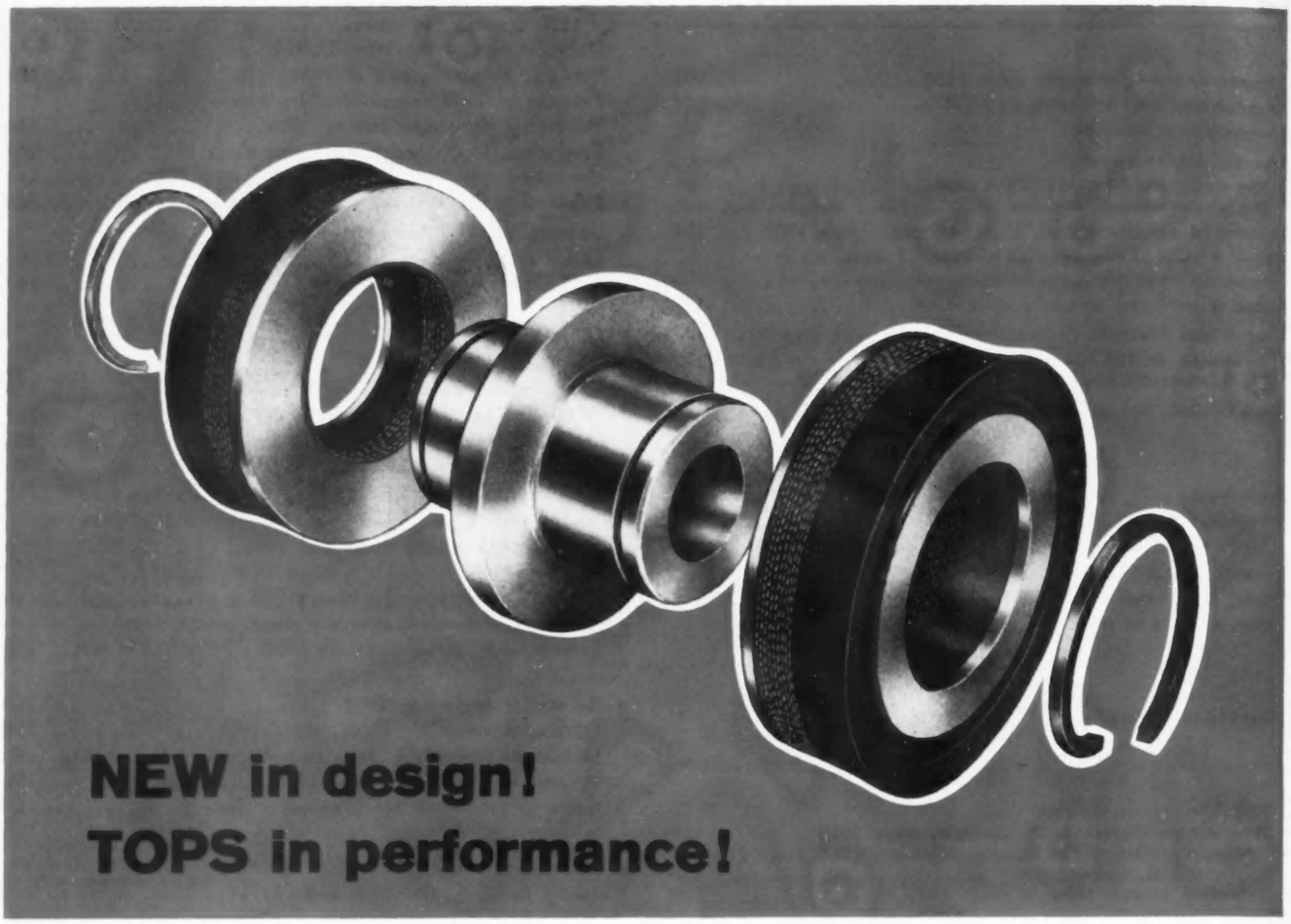

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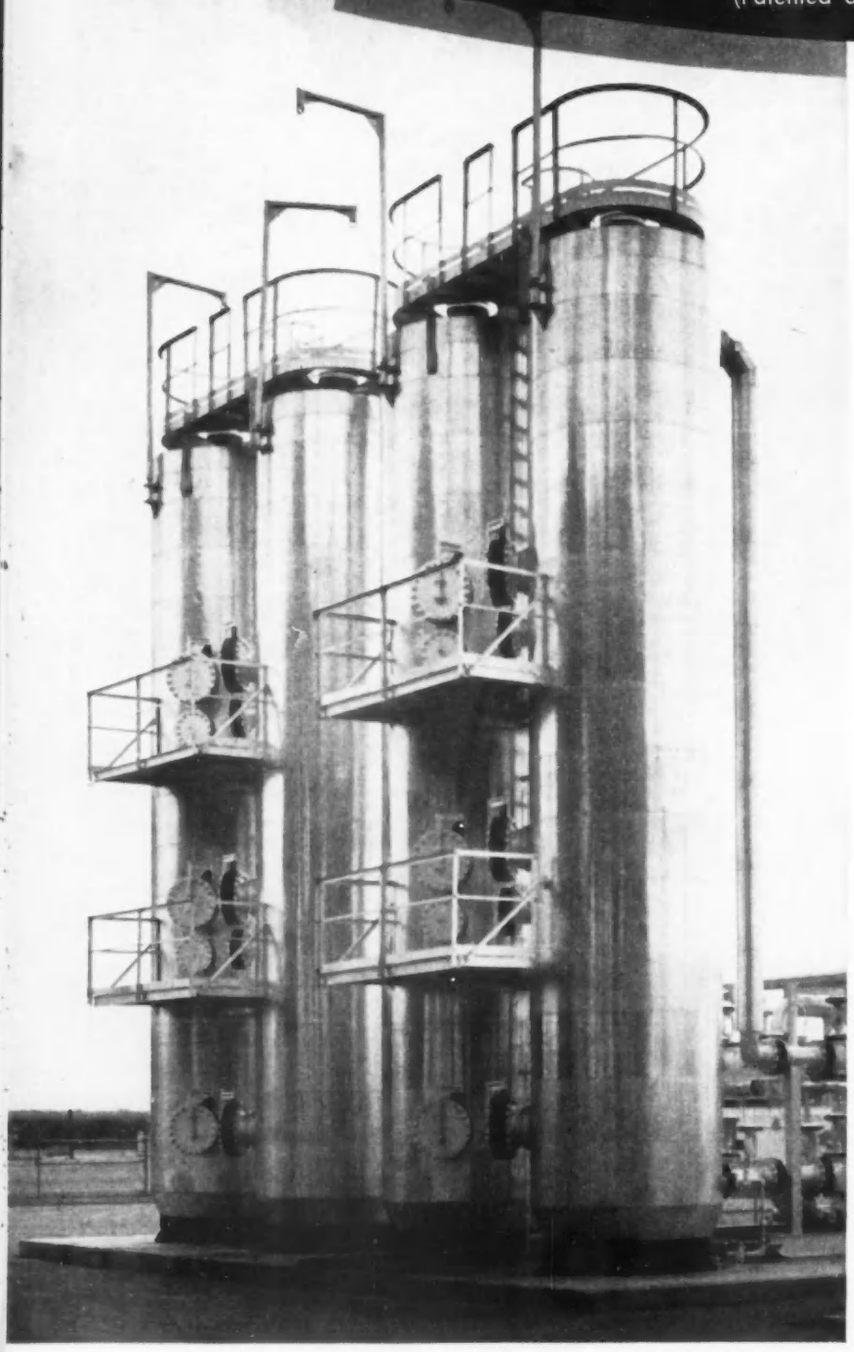

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Looking Ahead

Strike Hurts Texas Producers . . . Strike at Gulf Oil's Port Arthur refinery necessitated reduction in crude purchases from producers in Southern and Southwestern states. However, Shell, with walkout at its Wood River, Illinois, refinery, reports no immediate plans for purchaser proration.

Western Anadarko Basin Border Area Has Excellent Potential . . . Few wells west of this region's belt of early Paleozoic Wedgeout possibilities in non-marine Permian overlying basement have been drilled on basis of geologic-seismic mapping. In fact, less than one well per 100 square miles has been drilled in the several thousand square mile area extending from northeastern corner of New Mexico along boundaries of Texas and Oklahoma Panhandle northward into Colorado.

However, exploration and drilling have been progressing steadily from Oklahoma westward toward this Anadarko Basin border, indicating region will receive considerable attention in the future. (See March, 1959, World Oil, for complete story on this promising area).

Wider Spacing Defeated in Mississippi . . Mississippi Oil and Gas Board turned thumbs down on amending present spacing law of 40 acres for crude wells and 320 acres for gas wells. Meanwhile, ways to improve well spacing under present Texas conservation laws are being sought by Texas Oil Industry Conservation Forum subcommittee.

Another Increase in Steel Prices? . . . Caught in squeeze between recent 5 percent hike in wages and soft crude market which recently resulted in five more major producers reducing crude prices 7 cents per barrel, oil companies are looking warily at possibility of higher steel prices by June 30. Steel Workers Union is preparing for strike to get wage demands, indicating good chance that oil industry's slim profit margin might become even slimmer by mid-summer—after steel prices are increased for the 14th time in as many years.

Alaska Lease Activity Increases by Leaps and Bounds . . . According to top Alaska authority, in 1957 only 6.5 million acres of the new state's land were under oil and gas lease. Within 10 months the total jumped to more than 39 million acres. This is more than half the oil and gas land under lease in the rest of the U.S.

A new Alaska oil venture will get under way sometime this month. Halbouty Alaska Oil Company-King Oil, Inc. No. 1 will be spudded in on the Kenai Peninsula. Halbouty Alaska will be the operator.

Critic Blasts Atomic Shale Oil Blast . . . Pennsylvania Representative Flood says Atomic Energy Commission's Operation Plowshare project to release Rocky Mountain shale oil by setting off nuclear explosion in 900-foot tunnel would create "a great crater, scatter millions of tons of rock, much of it radioactive, over a large area—and would cost from $10 to $15 million to reclaim no oil whatever for commerce."

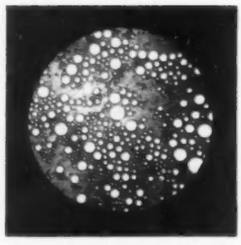
another
TRETOLITE SERVICE
report

TRETOLITE FIRST

WITH FOUR MONEY-SAVING AIDS TO PRODUCERS

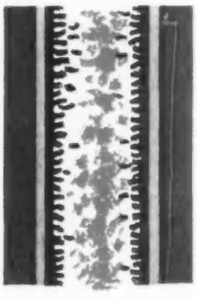
The following four production aids have been field-proved by billions of barrels of treated crude—and have saved producers literally billions of dollars over the years.

1. TRET-O-LITE*
Demulsifiers



The first chemical demulsifier used in the petroleum industry for the recovery of emulsified crude oil was invented by William S. Barnickel, founder of the Tretolite Company. Since then, TRET-O-LITE demulsifiers have rendered useful millions of barrels of crude oil that might otherwise have been lost. Today, many TRET-O-LITE formulas are available not only for the recovery of emulsified production, but also for salt removal from crude oil, and useful- oil salvage from tank bottoms and slop oil systems.

2. KONTOL*
Organic Corrosion Inhibitors



Tretolite Company research and field engineering developed the first organic corrosion inhibitors specifically for petroleum equipment and pioneered their first application. Today, KONTOL Corrosion Inhibitors are used in the production (as well as refinery and pipeline) departments of leading oil companies everywhere.

3. SOLVO*
Paraffin Removers

Paraffin removers which contain neither carbon bisulfide nor organic chlorinated solvents were first introduced by Tretolite. The harmful effects of chlorides in crude oils on certain refining catalysts have made clear the need for such chloride-free paraffin removers.

4. FLUDEX*
Multi-purpose Water Flood Additives

Another Tretolite "first", this series of products combines the features of organic corrosion inhibitors, bactericides, scale preventives and wetting agents. Widely used in water-flood operations, FLUDEX additives increase injectivity, and at the same time, mitigate problems arising from corrosion, bacteria and scale. They are also being effectively applied for backwashing water-flood filters, water clarification, and stimulating production in stripper wells.

Because Tretolite has developed and pioneered the application of these products, this organization can offer you a brand of experience and service in the manufacture, use and know-how of these products that's unequalled anywhere else in the industry.

For further information on how these and other money-saving Tretolite aids can fit into *your* operation, *ask the Man in the Red Car*—your own Tretolite Field Service Engineer.

*TRET-O-LITE, KONTOL, SOLVO and FLUDEX *are registered trade-marks of Petrolite Corporation.*

TF59-1

PETROLITE CORPORATION

TRETOLITE COMPANY
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5515 Telegraph Road, Los Angeles 22, California

CANADA: Petrolite Corporation of Canada, Limited, 309 Alexandra Bldg., Edmonton, Alberta

COLOMBIA: South American Petrolite Corporation, Calle 19, No. 7-30, Office 807, Bogota

ENGLAND: Petrolite Limited, 46 Mount Street, London W. 1.

VENEZUELA: South American Petrolite Corporation, Hotel Avila, Caracas

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NETHERLANDS: F. E. C. Jenkins, Hoefbladlaan 134, The Hague
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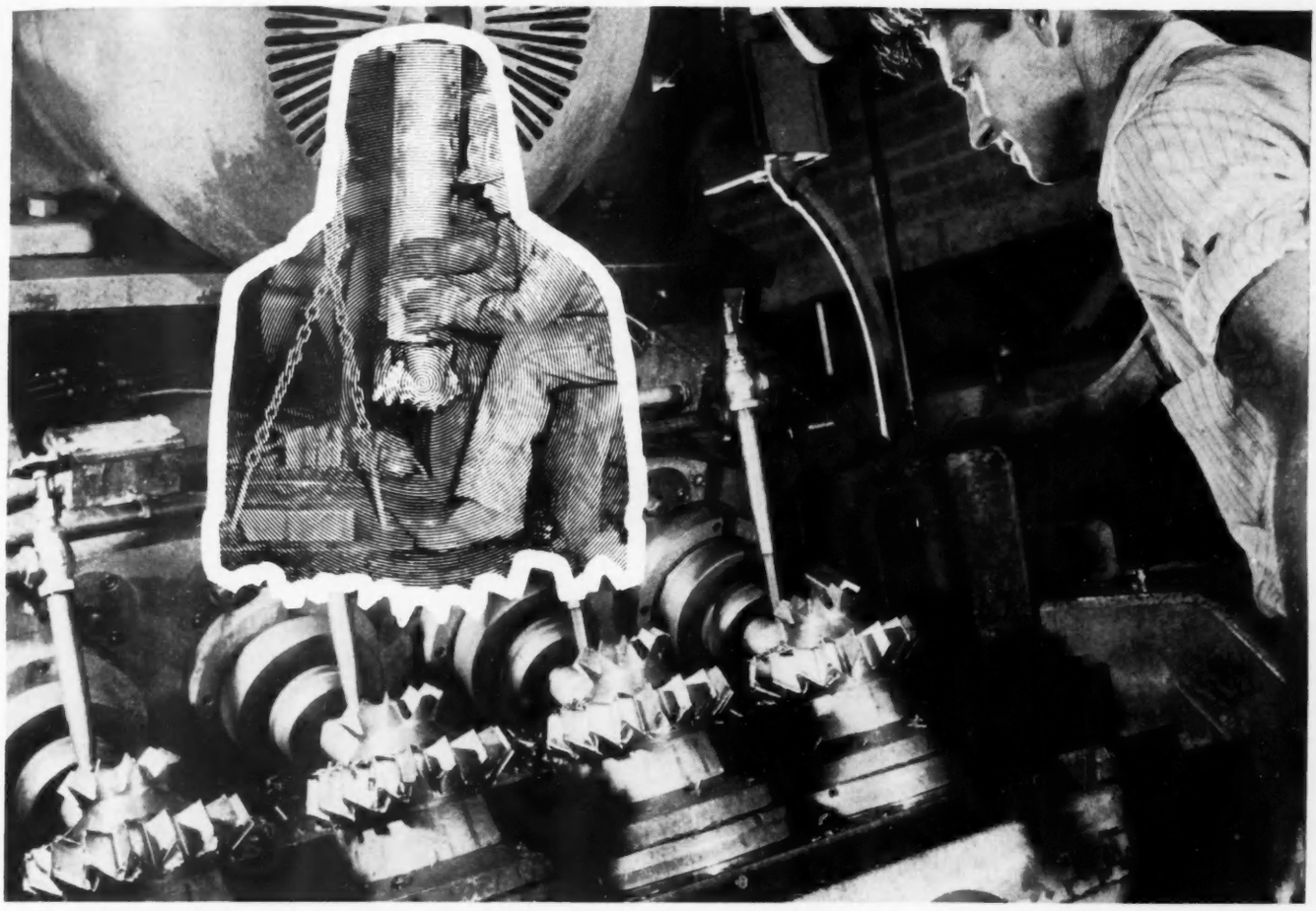

All Security Bit Penetration Records Start Here!

Here's why, on hundreds of new wells every month, Security bits are the first choice for fast, dependable drilling. Security rock bits are machined right, to rigid specifications and exacting tolerances. Batteries of machines, like the one illustrated, mill bit cones to precise cutting angles. Scores of other machines shape bit arms, bearings, and other bit components to provide outstanding service under the most difficult field conditions.

Security has acres of modern production equipment with the capacity to manufacture thousands of bits faster than ever before. *But more important,* Security bit production adheres to quality standards unsurpassed in the industry. These high standards have enabled Security bits to score penetration records on some of the world's deepest and most difficult wells.

Year after year—for nearly three decades—Security has supported a program of equipment improvement, plant expansion, and rock bit research and development. It is this progressive attitude—constantly alert to the needs of the industry—that continues to put more and better Security bits to work throughout the world.

For fast, dependable drilling specify Security rock bits on your next well. Write for Security catalog.

Security ® ®

PRECISION BITS SINCE 1931

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Available Through Your Favorite Accredited Supply Store

An important announcement to the drilling industry--

Drilling Contractors have found they get up to 50% FASTER DRILLING, 25% LONGER BIT LIFE, SUBSTANTIAL DOLLAR SAVINGS with DOWELL'S new drilling agent--POLYDRIL!

A brand-new aid for the rapid settling of solids in clear water drilling is now available from Dowell. The product is Polydril*, an *easy-to-mix, low-cost,* water-soluble, organic polymer. Polydril helps you increase drilling rates and bit life, and lower water and mud costs.

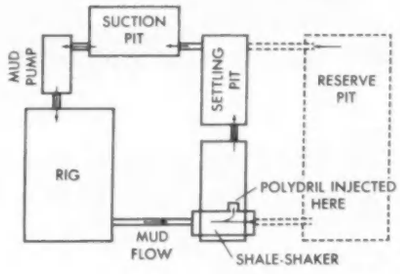
Polydril is, first, a powerful, efficient flocculating agent. But, of special importance, is the fact that Polydril comes to you in a semi-liquid state. This means that it is easy-to-mix, easy-to-use, with no waste or loss. There is no product on the market today quite like Polydril.

POLYDRIL IS EASY-TO-MIX

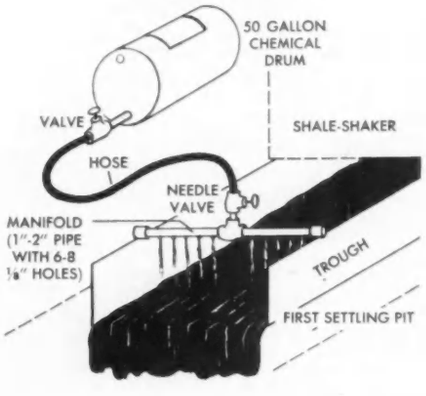
To illustrate the ease with which Polydril can be added to your drilling operation, here are the steps usually followed:

1. Stir the Polydril in the can to a uniform mix just as you would paint.
2. Mix a pint (approximately one-half mud cup or 1 to 1¼ pounds) of Polydril with an equal volume of diesel oil or kerosene.
3. Pour this mixture slowly and uniformly into a stream of water going into a 50-gallon chemical mixing drum. Either fresh water or brine may be used. This makes 50 gallons of treating solution.
4. Inject the treating solution directly into the mud stream between the shale shaker and the first settling pit. Disperse the solution as thoroughly as possible into the stream. A manifold arrangement has been found to be satisfactory for this purpose. (See sketch.) Also, if there is agitation in the mud stream at this point, the Polydril will be better dispersed; and the solids will be flocculated more efficiently.
5. For best results, keep agitation at a minimum through rest of the mud system.

DIAGRAM OF FLOW SYSTEM SHOWING POINT AT WHICH POLYDRIL IS INJECTED



MANIFOLD ARRANGEMENT FOR INJECTION OF POLYDRIL



OTHER USES OF POLYDRIL

Other than as an aid in clear water drilling, Polydril has several additional applications. For example, it can be used:

To help settle mud pits after drilling operations are completed.

To clear muddy water for use as a fracturing fluid.

AVAILABILITY OF POLYDRIL

Polydril is available at all Dowell stations in handy 5-gallon re-usable cans with handles. Each can contains 50 pounds of Polydril.

New as it is, Polydril has already enjoyed wide success in hundreds of wells. The sum of its advantages—faster drilling, reduced rig time, increased bit and pump-liner life, reduced water requirements, mud savings, mixing ease—makes Polydril an important contribution to the progress of oil well drilling. With all these advantages, Polydril is surprisingly inexpensive; and a small amount goes a long way.

Investigate Polydril. For detailed information and prompt service, call any of the 165 Dowell offices and stations. In Canada, call Dowell of Canada, Ltd.; in Venezuela, United Oilwell Service. Dowell, Tulsa 1, Oklahoma.

*Dowell Trademark

Products for the oil industry

DOWELL

DIVISION OF THE DOW CHEMICAL COMPANY

Pressing problems temper brighter outlook

THE ECONOMIC outlook of the U.S. petroleum industry is far brighter this year. Increasing demand and correction of excessive stocks promise higher producing rates despite increased imports of refined products.

However, the industry faces many problems, and 1959 looms as a critical year of decision.

One of the major problems which will affect widely the future of the industry and its position in supporting this nation's current standard of living is whether Congress will tamper with the percentage depletion provision. This provision, advocated and supported by each Congress since its inception, is a major factor in the ability of the oil industry to support U.S. requirements in peace and in times of critical emergency with plentiful and low cost products.

Efforts have been initiated in Congress to lower the percentage depletion provision. But why oil was singled out of the large number of industries which receive percentage depletion and subjected to this latest attack is not clear from a purely dollars and cents view.

Another reason why 1959 shapes up as a year of decision for the oil industry is the recent proposal to increase the federal gasoline tax. With state and U.S. taxes already approaching 50 percent of the retail price of gasoline, there is a serious question as to just how much of the revenue burden can be added to this product. A major segment of U.S. private and business activity exists on automobile transportation.

Then, too, remains the decision of the U.S. government on imports—action on which the setting of a definite policy has been delayed. Refined products will have to be brought under some controls program since, in 1958, the import of products increased as much as imports of crude were curtailed.

Another extremely serious matter is that of rising costs without compensating price increases. If the industry properly regulates its activities, there is a good chance that prices might stabilize at recent levels.

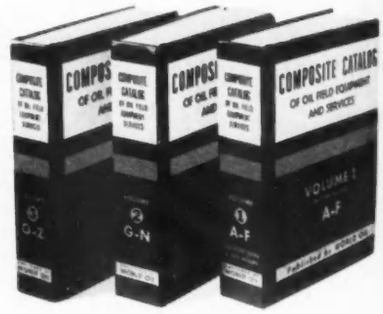
However, there is little prospect for any increase in prices; therefore, methods of holding down costs continue as a matter of utmost importance.

Action by Congress to relieve natural gas producers from the current utility type control also is needed.

Still another industry problem is the need for better tailoring of refinery output. Through poor adjustment of yields, a strong tendency to make too much gasoline is continuing. This, in turn, has brought on much of the price structure weakness affecting all phases of the industry, including crude oil prices. This has resulted because reduced product prices, particularly gasoline prices, have substantially reduced refinery profit margin, causing refiners to want to pay less for crude oil since gasoline is their money crop.

The oil industry must—to solve its problems—become more outspoken in its Congressional relations, and even within its own structure it must become more cognizant of economics and statistical trends.

IN THE COMPOSITE CATALOG



EVERYTHING YOU NEED TO KNOW TO ORDER THE BEST PRESSURE CONTROLS FOR DRILLING AND PRODUCTION

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The Changing Panorama, 1958-1959

ALTHOUGH the crippling effect of strikes against major refineries has combined with excessive imports to mar the immediate future for U.S. producers, the over-all economic outlook for 1959 presents a considerably brighter future than last year.

Oil industry earnings, up considerably in the last quarter of 1958, are expected to be even better in the first quarter of 1959. With stocks reduced to workable levels, expected tighter import controls and an estimated 4 percent increase in total demand, the following outlook for 1959 is forecast by World Oil:

Crude production is expected to increase 8.6 percent to 7.3 million barrels per day; natural gas liquids production will be up 4.2 percent; crude runs to stills, 6.8 percent; new well

Salient Oil and Gas Statistics of U. S. for 1957 and 1958 and Forecasts for 1959

ITEM	THOUSANDS OF BARRELS, EXCEPT AS NOTED				
	1957	1958	% Diff. '57-'58	1959 Forecast	% Diff. '58-'59
Total Demand, All Oils	**3,425,806**	**3,384,280**	**— 1.2**	**3,520,790**	**+ 4.0**
(Daily Average)	9,386	9,272	— 1.2	**9,646**	+ 4.0
Gasoline, Total Demand	1,431,541	1,442,115	+ 0.7	**1,481,170**	+ 2.7
(Daily Average)	3,922	3,951	+ 0.7	**4,058**	+ 2.7
Kerosine, Total Demand	112,959	115,705	+ 2.4	**121,180**	+ 4.7
(Daily Average)	309	317	+ 2.4	**332**	+ 4.7
Residual Fuel Oil, Total Demand	587,371	544,945	— 7.2	**555,895**	+ 2.0
(Daily Average)	1,609	1,493	— 7.2	**1,523**	+ 2.0
Distillate Fuel Oil, Total Demand	663,842	667,585	+ 0.7	**693,865**	+ 3.9
(Daily Average)	1,819	1,829	+ 0.7	**1,901**	+ 3.9
Domestic Demand, All Oils	**3,218,619**	**3,282,810**	**+ 2.0**	**3,422,970**	**+ 4.3**
(Daily Average)	8,818	8,994	+ 2.0	**9,378**	+ 4.3
Gasoline, Domestic Demand	1,392,953	1,416,200	+ 1.7	**1,455,985**	+ 2.8
(Daily Average)	3,816	3,880	+ 1.7	**3,989**	+ 2.8
Kerosine, Total Demand	112,959	115,705	+ 2.4	**121,180**	+ 4.7
(Daily Average)	309	317	+ 2.4	**332**	+ 4.7
Residual Fuel Oil, Domestic Demand	548,801	519,395	— 5.4	**532,900**	+ 2.6
(Daily Average)	1,504	1,423	— 5.4	**1,460**	+ 2.6
Distillate Fuel Oil, Domestic Demand	616,090	646,780	+ 5.0	**673,060**	+ 4.1
(Daily Average)	1,688	1,772	+ 5.0	**1,844**	+ 4.1
Exports, Total Crude Oil and Refined Products	**207,187**	**101,470**	**—51.0**	**97,820**	**— 3.6**
(Daily Average)	568	278	—51.0	**268**	— 3.6
Crude Oil Exports	50,243	4,380	—91.3	**3,650**	—16.7
(Daily Average)	138	12	—91.3	**10**	—16.7
Refined Products Exports	156,944	97,090	—38.1	**94,170**	— 3.0
(Daily Average)	430	266	—38.1	**258**	— 3.0
Crude Runs to Stills, Total	**2,890,436**	**2,781,300**	**— 3.8**	**2,969,640**	**+ 6.8**
(Daily Average)	7,919	7,620	— 3.8	**8,136**	+ 6.8
Domestic Crude Runs to Stills	2,529,672	2,436,036	— 3.7	**2,622,890**	+ 7.7
(Daily Average)	6,931	6,674	— 3.7	**7,186**	+ 7.7
Foreign Crude Runs to Stills	360,764	345,264	— 4.3	**346,750**	+ 0.4
(Daily Average)	988	946	— 4.3	**950**	+ 0.4
Crude Oil Production	**2,616,901**	**2,446,595**	**— 6.5**	**2,657,200**	**+ 8.6**
(Daily Average)	7,170	6,703	— 6.5	**7,280**	+ 8.6
Value at Wells, $ Thousand	8,086,224	7,477,072	— 7.5	***7,838,740**	+ 4.8
Average Value, $ Barrel at Wells	3.09	3.01	— 2.6	***2.95**	— 2.0
Natural Gas Liquids Production	**294,990**	**291,419**	**— 1.2**	**303,650**	**+ 4.2**
(Daily Average)	808	798	— 1.2	**832**	+ 4.2
Average Value at Plants, ¢ per Gallon	5.5	5.5	.....	***5.5**	.....
Imports, Total, Crude Oil and Refined Products	**574,589**	**602,615**	**+ 4.9**	**568,670**	**— 5.6**
(Daily Average)	1,574	1,651	+ 4.9	**1,558**	— 5.6
Crude Petroleum Imports	373,255	346,750	— 7.1	**346,750**	.....
(Daily Average)	1,023	950	— 7.1	**950**	.....
Refined Products Imports	201,334	255,865	+27.0	**221,920**	—13.3
(Daily Average)	552	701	+27.0	**608**	—13.3

* On basis of prices during January, 1959.

(Continued on Page 26.)

CHANGING PANORAMA *continued*

completions, 4 percent, and total footage drilled will increase 3.7 percent.

The above forecasts contrast sharply with the "corrective year" of 1958 which experienced a 467,000 barrels per day, or 6.5 percent drop in crude production; a 1.2 percent decrease in natural gas liquids production, the first drop in 25 years; and a reduction of 3.8 percent or 299,000 barrels per day in crude runs to stills. With production down, crude prices weak and operating costs increasing, total well completions dropped 10.1 percent and total footage drilled decreased 11.3 percent last year.

Three factors made 1958 an off-year for the oil industry:

1. Excessive inventories early in 1958, resulting from overproduction in 1957 to meet Europe's needs during the Suez Crisis, created a soft market that weakened the price structure of crude and products during the year.

2. Contributing heavily to the excessive crude and product stocks, and the resulting sharp cutback in state production allowables, was the continued high import level of 1.6 million barrels per day.

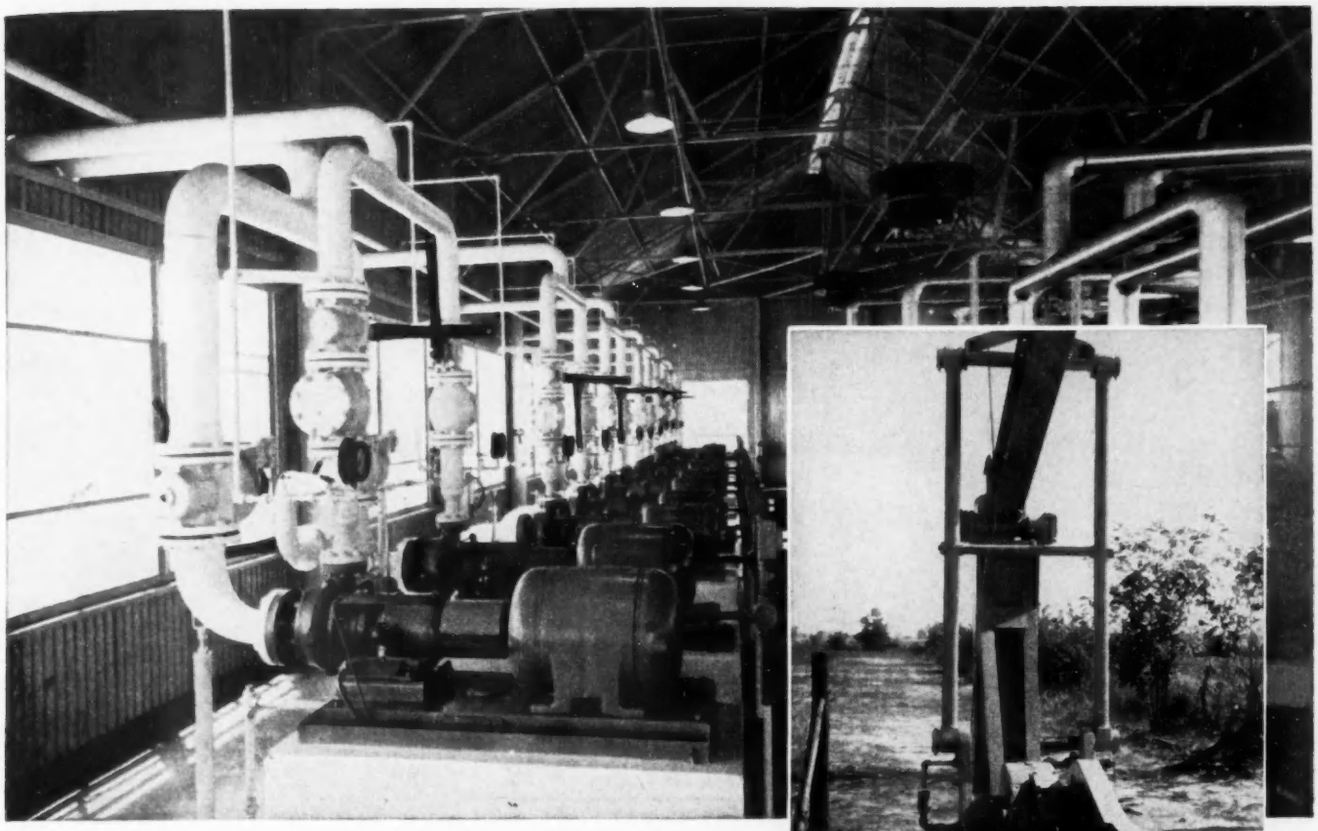
3. To make matters worse, a general business recession knocked the bottom out of total demand for all oils, with a decrease of 114,000 barrels per day or 1.2 percent from 1957 levels. This marked the first time demand had decreased since 1949, and it was only the second time since 1942.

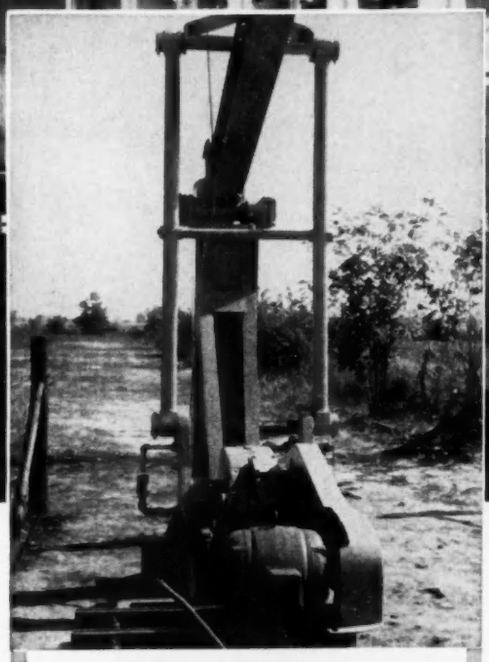
Salient Oil and Gas Statistics of U. S. for 1957 and 1958 and Forecasts for 1959

(Continued from Page 25)

ITEM	NUMBER, EXCEPT AS NOTED				
	1957	1958	% Diff. '57–'58	1959 Forecast	% Diff. '58–'59
Nat'l Gas Marketed Production, Bln. Cu. Ft.	**10,680**	**11,015**	**+ 3.1**	**11,500**	**+ 4.4**
Value at Consumption Points, ¢ per M. Cu. Ft.	43.1	44.5	+ 3.3	**46.0**	+ 3.4
Value at Wells, ¢ per M. Cu. Ft.	11.3	11.7	+ 3.5	**12.2**	+ 4.3
Stocks, End of Year, All Oils, Thousand Barrels	**841,317**	**790,018**	**— 6.1**	**799,143**	**+ 1.1**
(Days' Supply)	90	85	— 5.6	**83**	— 2.4
Crude Oil Stocks, Thousand Barrels	281,813	263,039	— 6.7	**263,039**	.....
(Days' Supply)	35	34	— 2.9	**32**	— 5.9
Natural Gas Liquids Stocks, Thousand Barrels	21,567	21,550	— 0.1	**21,550**	.....
Refined Products Stocks, Thousand Barrels	537,937	505,429	— 6.1	**514,554,000**	+ 1.8
Gasoline Stocks, Thousand Barrels	196,776	186,200	— 5.4	.....	.....
(Days' Supply)	50	47	— 6.0	.....	.....
Distillate Stocks, Thousand Barrels	149,449	126,700	—15.2	.....	.....
(Days' Supply)	82	69	—15.9	.....	.....
Kerosine Stocks, Thousand Barrels	29,200	26,100	—10.6	.....	.....
Residual Stocks, Thousand Barrels	59,959	60,700	+ 1.2	.....	.....
New Fields Discovered, Total	**1,181**	**1,043**	**—11.7**	.....	.....
New Oil Fields Discovered	848	743	—12.4	.....	.....
New Distillate Fields Discovered	120	80	—33.3	.....	.....
New Gas Fields Discovered	213	220	+ 3.3	.....	.....
Wildcats Drilled	**11,409**	**9,762**	**—14.4**	**10,090**	**+ 3.4**
Productive Wildcats Drilled	1,181	1,043	—11.7	.....	.....
Non-Productive Wildcats Drilled	10,228	8,719	—14.8	.....	.....
Well Completions, Total	**54,173**	**48,764**	**—10.0**	.....	.....
New Wells Completed, Total	**53,783**	**48,331**	**—10.1**	**50,275**	**+ 4.0**
Oil Wells	27,519	23,774	—13.6	**24,685**	+ 3.8
Distillate Wells	743	710	— 4.4	**5,225**	+ 4.4
Gas Wells	3,879	4,295	+10.7		
Dry Holes	20,250	18,162	—10.3	**20,365**	+ 4.2
Input and Disposal Wells	1,392	1,390	— 0.1		
Old Wells Drilled Deeper	**390**	**433**	**+11.0**	.....	.....
Footage Drilled, Total Wells, Thousand Feet	**221,232**	**196,220**	**—11.3**	.....	.....
Footage Drilled, New Wells, Thousand Feet	**220,864**	**195,830**	**—11.3**	**203,009**	**+ 3.7**
Development Footage, Thousand Feet	167,164	149,520	—11.6	.....	.....
Wildcat Footage, Thousand Feet	53,700	46,310	—13.8	.....	.....
Footage Drilled, Old Wells, Thousand Feet	**368,160**	**390,230**	**+ 6.0**	.....	.....
Wells Drilling, End of Year	**4,569**	**4,445**	**— 2.7**	.....	.....
Wells Drilling During Year, Average	4,791	4,114	—14.1	.....	.....
Producing Oil Wells, End of Year	**563,543**	**574,515**	**+ 1.9**	.....	.....
On Artificial Lift	495,016	506,390	+ 2.3	.....	.....
Flowing Oil Wells	68,527	68,125	— 0.6	.....	.....
Producing Gas and Condensate Wells, Yr. End	**78,869**	**83,328**	**+ 5.6**	.....	.....
Gas Wells	71,761	74,894	+ 4.4	.....	.....
Condensate Wells	7,108	8,434	+18.6	.....	.....

Wagner ELECTRIC MOTORS...
THE CHOICE OF LEADERS IN THE PETROLEUM INDUSTRY



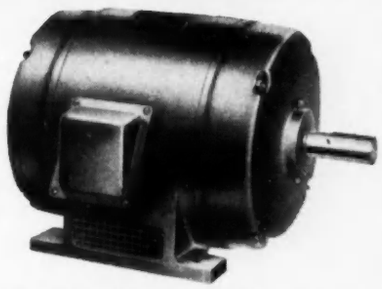


WAGNER Petroleum Industry Motors cut operating costs in *FIELD* and *REFINERY*

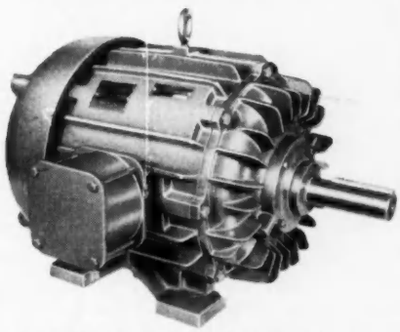
Wagner Type DP and DY Motors are especially designed to meet the load conditions of oil well pumping—to give cost-cutting, year-round, maintenance-free outdoor service. Corrosion-resistant cast iron frames and endplates protect the motor from rain, sand and snow. Conduit boxes are moisture proof and dust-tight. These motors are available for either polyphase or single phase operation. You can get them from stock in your immediate area.

You cut costs when you install Wagner Type JP explosion-proof motors in the refinery because these are built with *extra protection* that means longer motor life: the vital parts of the motor are sealed against dust, fumes, and moisture—the cause of most motor maintenance problems. These motors are approved for Class 1, Group D hazardous locations.

For full information, write for Bulletins MU-224 and MU-137, or phone your nearby Wagner branch office.



Type DP or DY oil well pumping motor. Single phase or polyphase.



Type JP standard totally-enclosed, in ratings through 250 hp; and Type ZP tube ventilated, in ratings through 500 hp.

WM59-1

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Practical Operating Hints

These **How-To-Do-It** Ideas Can Save You Money

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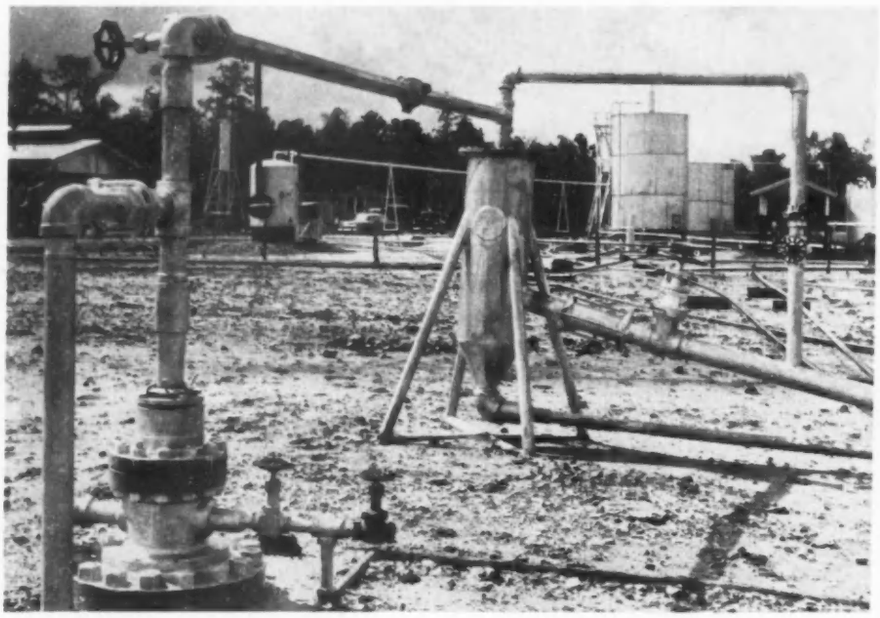
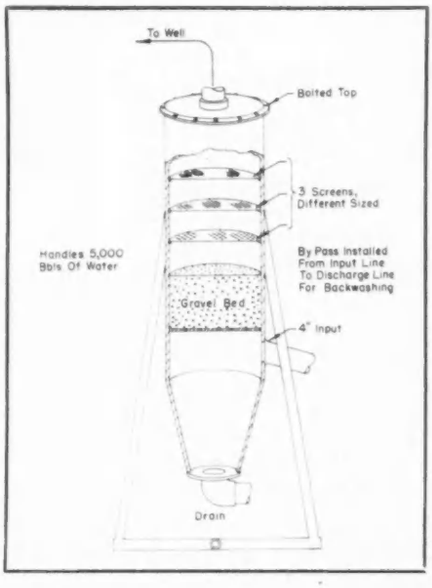


"Screen" Salt Water With Lease Constructed Filter

This efficient field constructed salt water filter easily "screens" 5,000 barrels per day of lease salt water. The unit is installed on the main gathering line immediately upstream of the lease salt water disposal well. This type of filter is especially adaptable to "stripper" leases which will not support the investment cost of more elaborate salt water treating equipment.

The outer shell of the filter is made from a discarded section of 16-inch spiralweld conductor pipe. The supporting framework is constructed from 2½-inch tubing. As shown, the bottom portion of the spiralweld pipe is orange peeled and welded to a 4-inch nipple which serves as the drain line for the unit. The 4-inch input line (tied into the vessel at an angle near the bottom) enters the unit immediately below a gravel bed which in turn is supported by a perforated steel plate as indicated in the drawing. Immediately above the gravel bed are three differently sized screen sections (from bottom to top: coarse, medium, fine) for filtering any fine particles which escape the gravel bed.



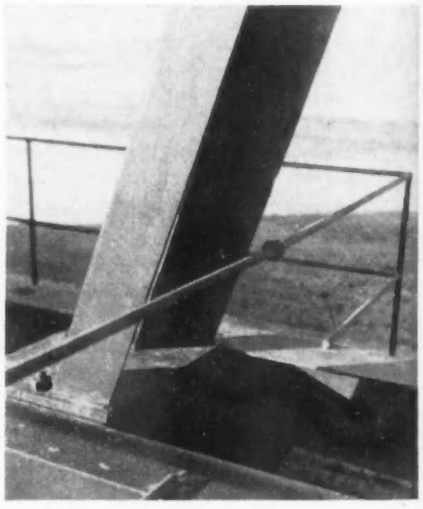
(These screen sections are actually much closer to each other than shown in the schematic drawing.) Finally, a bolted top outlet is provided so that screen sections may be replaced if necessary.

Water enters the filter through the angular input line. It then passes through the gravel beds and screen sections and out the top of the vessel to the disposal well. The by-pass from the input line to the top of the vessel is used for backwashing purposes.

Rack Holds Hose While Washing Rig Down

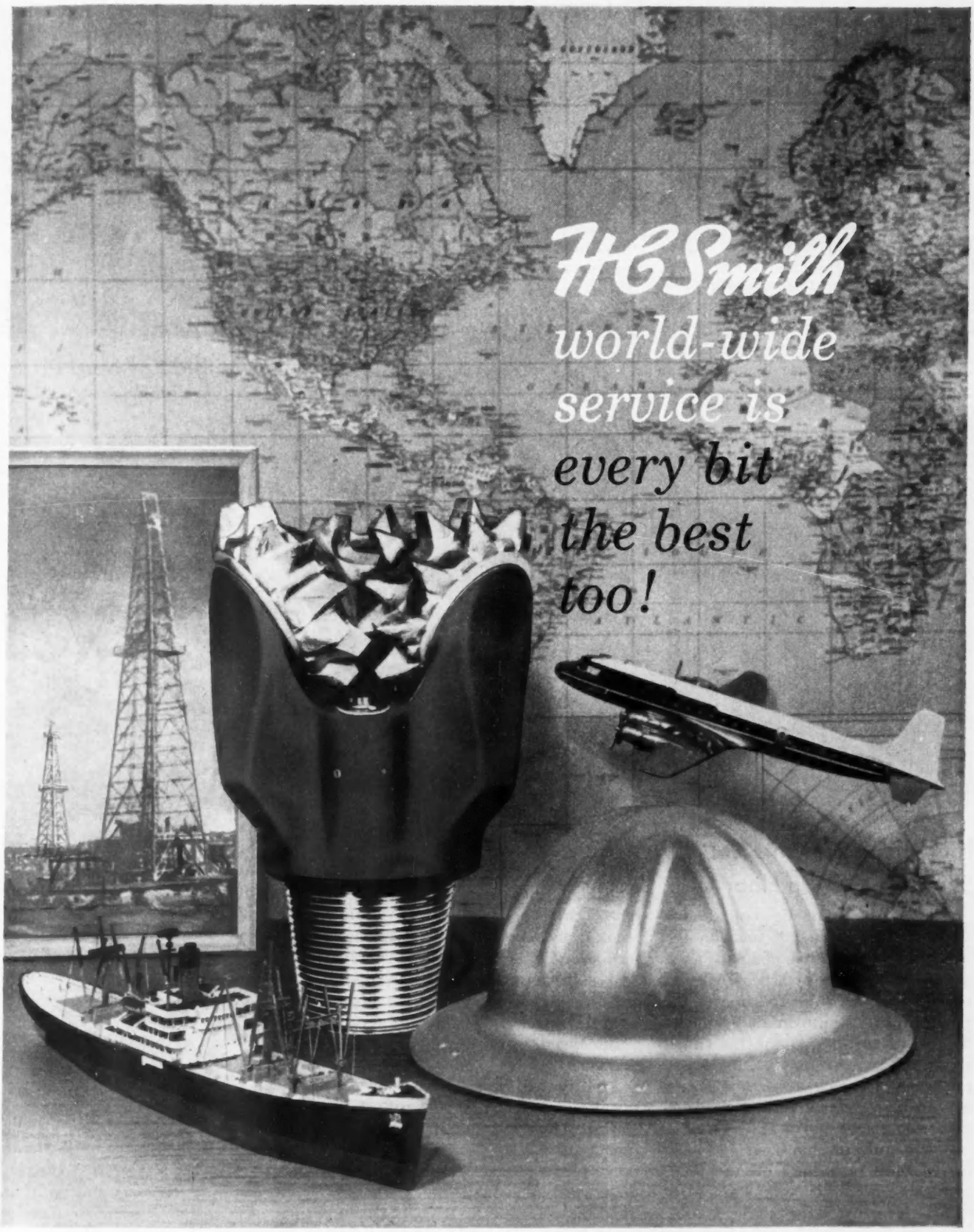
The illustrated water hose rack is especially convenient for holding hose for washing down the derrick floor. If a water hose rack of some sort is not provided, the hose usually ends up in the way on the derrick creating a safety hazard.

This rack is made from three pieces of sheet metal. Two pieces are cut identically in a crescent shape. The third piece is used to forge a base for the rack. This unit is usually mounted on a guard rail as illustrated.



Pipe Union Joins Guard Rail Sections

An improved method of mounting and tying together the major sections



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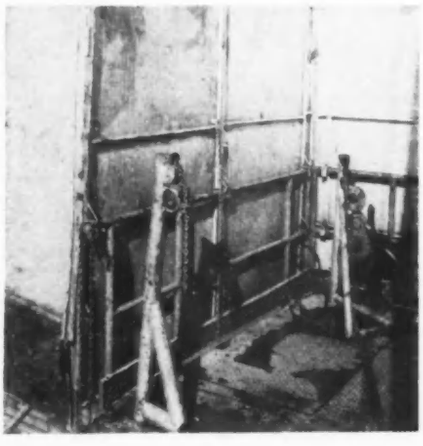
of the pumping unit guard rail is used by one operator.

Made in the conventional manner out of sucker rod material, with two horizontal rails, the guard is made in two large sections, one for each side of the unit. At the mid-point where the top rails join, a ¾-inch pipe union is installed. The lower rails, being shorter at this point, rest on the top surfaces of the pumping unit I-beam base members. When the well or pumping unit is to be serviced, all that is necessary to remove the guards is to disconnect the union and pull the two sections apart.

Reinstalling the guard is equally simple. Use of the union eliminates costly welder's time in devising or fabricating various types of connectors or latches that otherwise would be necessary to join the sections together.



Kick Panel Prevents Tools Skidding Off Rig Floor

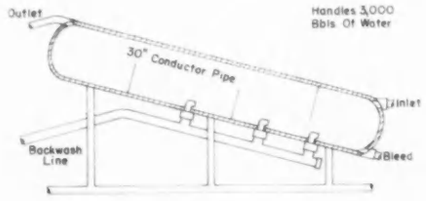
A measure involving both safety and potential saving of time on the rig floor is seen in one company's use of an efficient type of kick panel that is welded to the lower portion of the rig guard rail. Approximately 8 inches high, and as long as the individual guard rail sections may be, the guard comprises a 1-inch angle iron frame in which is welded a strip of heavy expanded metal.

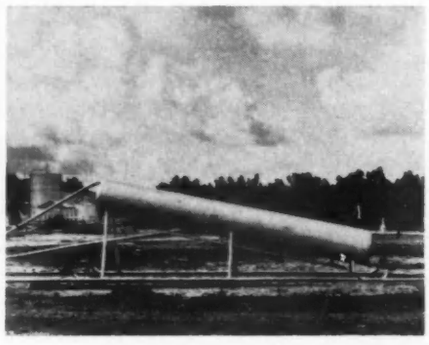
The guard prevents accidental kicking of tools or fittings off the floor, with the accompanying hazard of striking a man working on the ground; also saves a man running down off the floor after some tool that has skidded off at a critical time in round trip operations. Use of the expanded metal keeps weight to a minimum; also permits unimpeded hosing down of the rig floor from all parts of the rig.

Construct Sand Trap From Scrap Material

This field constructed sand trap has successfully handled as much as 3,000 barrels of well fluids per day with considerable quantities of sand. The unit is easily constructed in the field using junk materials. A welder is required for the finished product.

The shell of the trap is constructed of 30-inch conductor pipe. All skid and leg components are made from 2½-inch line pipe or tubing. The trap is provided with inlet, outlet, backwash and bleed connections as shown in the drawing. Inlet and outlet connections are made by welding 2½-inch collars directly to the trap shell. Three 2-inch collars are provided as inlets for the back wash line.





These three connections are located so that back wash fluid is directed into each separate compartment (areas between the baffles shown in the drawing) of the trap. This flushes accumulated sand from the entire vessel through the 4-inch bleed connection.

Well fluid is directed into the vessel through the inlet connection shown. The well stream strikes the first baffles (welded from the top portion of the shell) and is directed downward. The fluid then must pass over the remaining two baffles to reach the vessel outlet. By the time the fluid has followed this route, 99 percent of the suspended sand has collected between the vessel baffles. The unit shown is being used on an extremely high fluid gas lift well in the South Louisiana area.

Hoist on Side of Mud Pit Has Varied Usages

One Gulf Coast contractor has built a hoist on the side of the mud pit which can be used for varied uses.

This hoist is used to raise and lower the mud pit suction as well as to snatch and place heavy pipes carrying mud or water.

The hoist is constructed from sections of 2½-inch pipe—three for each support and one for the horizontal work-bar. It is on this cradled work bar that the two small hoists are mounted.

Extended Lube Fitting Aids Servicing of Pumping Unit

Lubricating wrist pin and tail bearings on a small pumping unit can be simplified by extending, with lengths of ¼-inch pipe, the lubrication fittings so that they come within easy reach of a man standing on the ground.

Extended as shown in the photograph, the fittings can be reached by the pumper merely by reaching over

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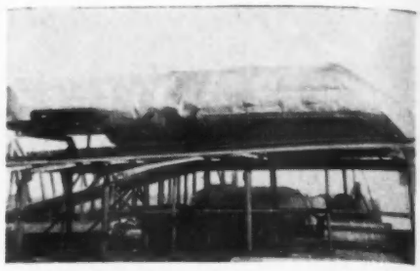
the guard rail, thus eliminating any need to move that heavy member to one side. The only modification work requiring a welder is the attaching of a small bracket, having a hole drilled through it, to the side of each pitman. Even this bracket need not be precisely located since the pipe can be slipped through it, leaving the grease fitting to project above it for several inches.

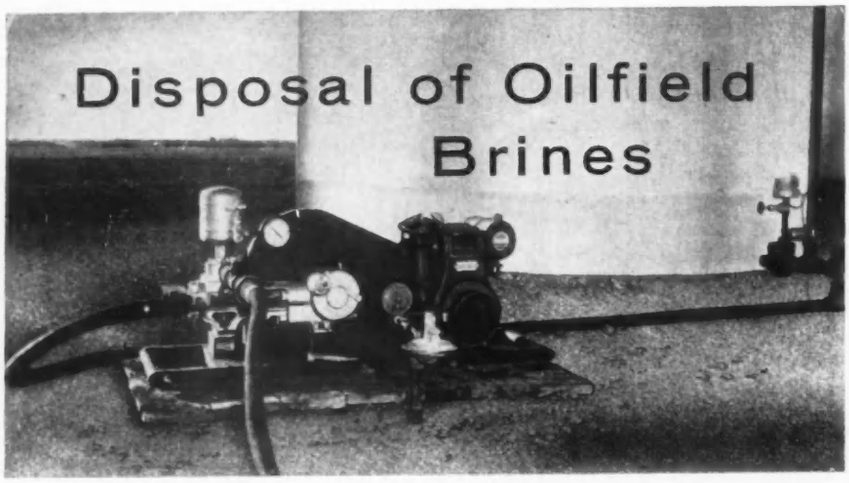
Equipping a typical pumping unit in such a manner is relatively inexpensive, requires only standard pipe and fittings, and can result in appreciable saving of the pumper's time at each well.

Diesel Fuel Tank For Rig Motors

A contractor has to keep his eyes open at all times for methods to cut costs. In these days of competitive bidding, cost-saving ideas may give the contractor his only profit. This



illustrated tank is a salvaged air force type tank which had been truck-mounted. Apparently the truck went to the junk yard, but the bright eyed contractor probably snapped up the tank for a minimum amount. Mounted on an elevated substructure, the salvaged tank works very satisfactorily as a diesel fuel tank for the rig motors.



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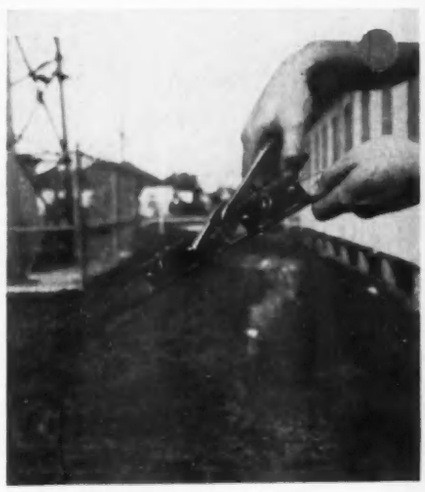


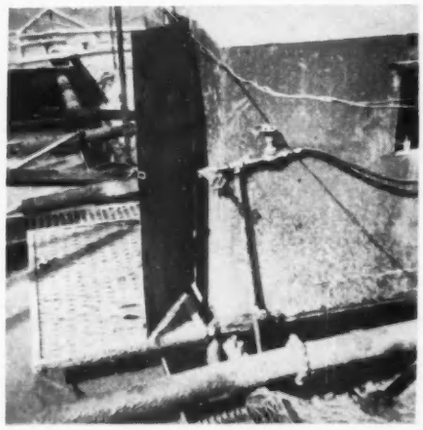
Device Permits Safe Wire Line Cutting

There have been many instances when field personnel have been injured while cutting wire line. Free wire when cut, tends to "spring apart" with considerable force. The sharp, free ends of the line must be controlled in some manner to prevent an extremely dangerous situation. The device pictured here has solved this problem and provides maximum safety for the entire operation.

As illustrated, the device consists of a steel rod and two small hinged double sections of steel plate equipped with thumb screws. Two bolts are run through each hinged section to act as guides for small springs which are located between the plate faces. These springs tend to hold the plate sections in an open position for rapid and sure insertion of the wire. A stop

is provided so that the plates can expand only a short distance.

When a section of wire line has to be cut, the wire is inserted in the narrow open space between each hinged steel plate face section. The thumb screws are inserted in the slotted section of the plates and tightened. This causes the steel plates to be compressed with the wire between plate faces; the wire is securely held in this position. Wire cutters are inserted in the open space between each of the hinged plate sections as shown in the photograph and the wire is cut. Since the wire is securely held by the steel plates, free ends are not allowed to "spring back." The thumb screws are loosened one at a time so that control of the free ends is maintained at all times.

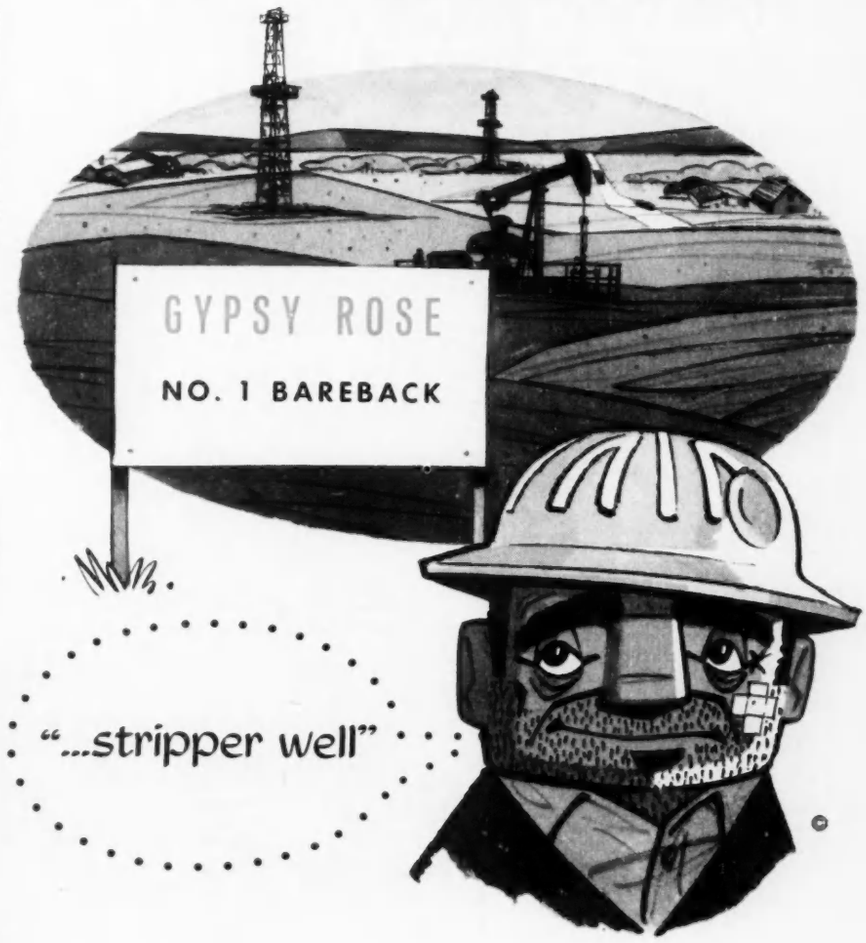


Build Mud Testing House On Portable Mud Tank

Have you ever wanted a place out of the elements where your derrick man could test the mud, but you put it out of your mind because of lack of space? Maybe this hint will help you get that house for mud testing in the space you have available. You can take a small steel house, install sink, water, and shelves for the mud testing equipment, and mount it on the side of the settling tank near the shale shaker.

The house is mounted on the settling tank as follows: a short piece of pipe is welded at each front corner of the house to form male fittings. These male fittings fit into female fittings welded to the inside at the top of the tank. Two diagonal supports are hinged at the bottom of the back corners and at the side of the mud tank toward the bottom. This type of mounting makes the mud testing house easy to remove when moving the rig.

Congrats and $25 to R. W. WARING, 511 Oil & Gas Bldg., Oklahoma City.



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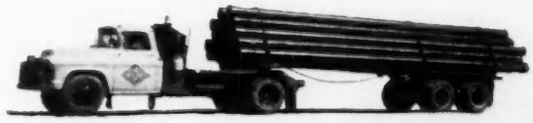

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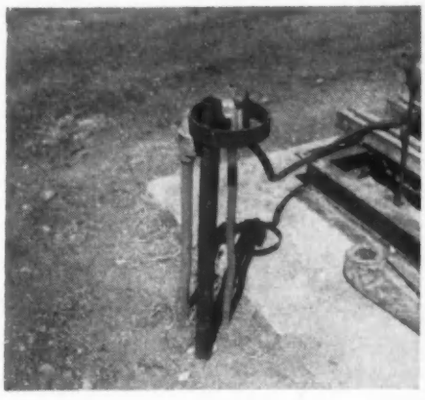
Construct Pipe Rack To Hold Small Pipe

If storage of small pipe is your problem, then this hint will help. A contractor in the Gulf Coast had the same problem but licked it by constructing a small pipe rack on the side of a skid mounted tank. The small rack is constructed by welding several pieces of sucker rod, bent into an L-shape, to the skid support of the tank. This rack and other similar innovations for small seldom used parts helped the contractor maintain good housekeeping and good safety practices.



Pipe Post Protects Motor Starting Switch

The motor starting switch and conduit riser situated, usually a short distance away from the end of the pumping unit pad, not infrequently becomes a casualty as a result of accidental bumping by the pumper's pick-up, or by other vehicles connected with well service work. The cost of repairing often can be an appreciable item, inasmuch as it frequently means stringing new wires through conduiting between the switch and power pole as a result of moisture getting into the conduit or

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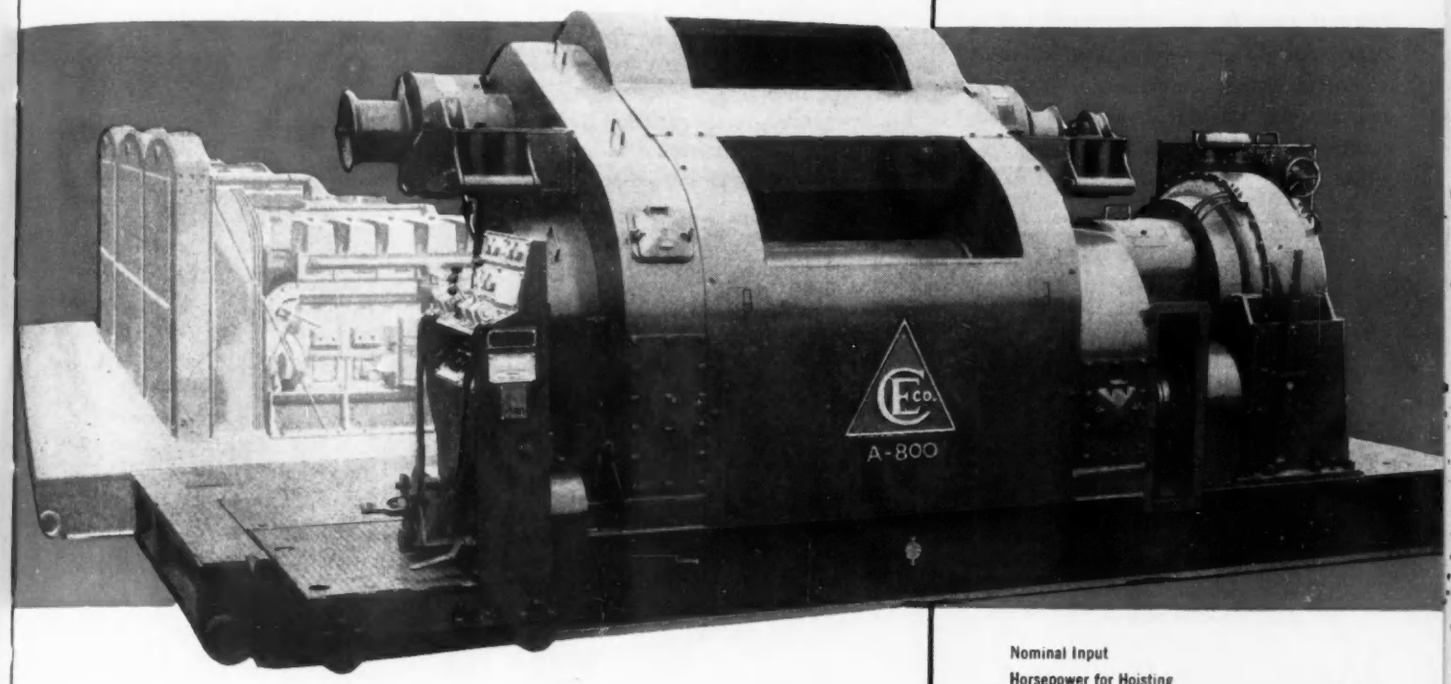

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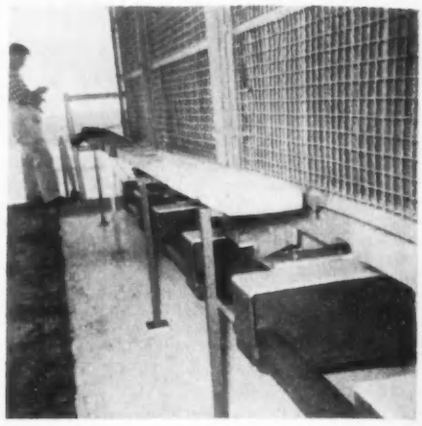
because abraded wires create a shorting-out hazard.

One company reduces the possibility of such damaged equipment by driving a 2-inch pipe post in the ground alongside the conduit riser and at the top of the post welding a steel ring which surrounds the box. Painted red, or a bright color, this guard post easily is seen, and, should a vehicle nudge it accidentally, damage to the electrical gear will be avoided or at least held to a minimum.

Build Inspection Scaffold For Rig Motor Radiators

It is sometimes quite a problem on rigs to add water or repair a rig motor radiator. Many times ladders are permanently installed on each radiator or a movable ladder is moved from one radiator to another. If these modern conveniences are not provided the crew members have to climb around like monkeys.

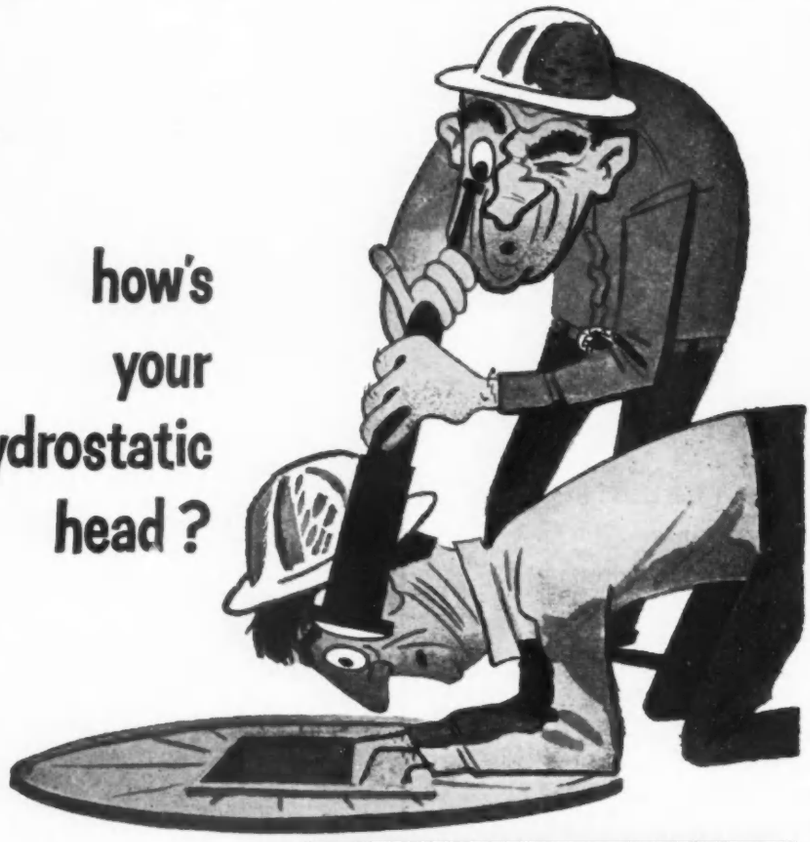
To avoid this, one contractor had several supports constructed along the front of his row of radiators so that a large plank could be laid across them. This enabled crew members to move quickly from one radiator to another. The supports are constructed from angle iron in the shape of an inverted L. One end of the leg is welded to the radiator guard while the other end is bolted to the deck.



Neatly Stored Panels Save Time, Money

On a pumping well driven by a gas engine, a common source of annoyance to management is the problem of what happens to engine siding panels which are removed during hot days or during summer months. Not infrequently, unless a definite place is provided for them, they will be set aside "temporarily;" a time interval that too often sees them blown down, driven over or perhaps taken away and stored where they cannot be found and installed when needed.

One company solves this problem simply and effectively by having all such panels hung on small hooks attached to the pumping unit guard rails. Stored in this manner, the panels are out of the way of general service work, yet are available when needed again; easily seen and thus accounted for at all times; and, of prime importance, they cannot be



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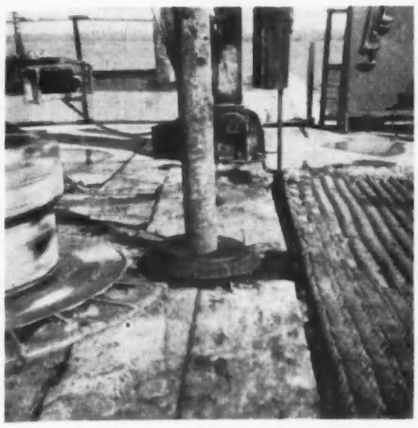
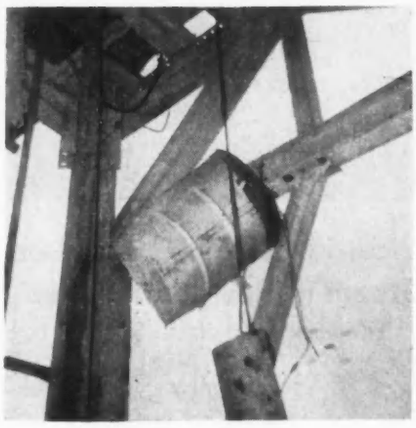
HEmlock 6-2265	EMerson 9-9862	FOrest 6-1441

blown down or knocked over where they will get under foot or in the way of a service vehicle working at the well. When again installed, there is every assurance that the panels will fit without need for a mechanic to make them fit, or a welder to heat and straighten damaged latches, louvers or the sheet metal siding.



Mousehole Cover Excellent Safety Feature

Have you ever figured out what to do with those used pipe wipers? One oil company driller thought that he needed a cover for the mousehole to keep someone from accidentally falling in. A worn out pipe wiper served the purpose very well. Now the pipe wiper serves a useful safety purpose instead of being thrown away or burned.



Rig-Built Reflector Brightens Work Area

Poorly lighted work areas frequently have the highest accident frequency. Reflector lights are expensive, but an unreflected light is only about 30 percent effective.

An idea of this nature has afforded the space beneath the derrick floor

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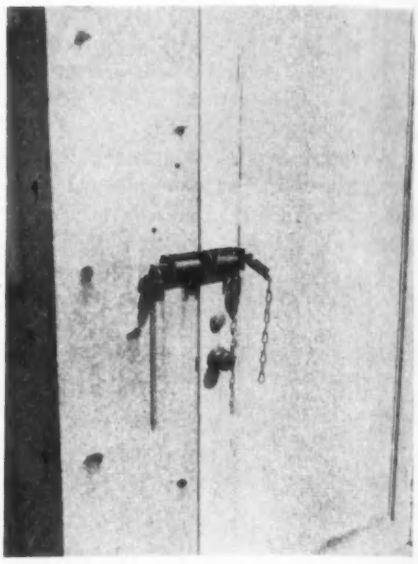
with top notch floodlights. All that is required is a discarded oil drum and a bit of white paint. Cut the drum in half, lengthwise, clean the inside and paint it white. Now by mounting an ordinary light bulb to the outside of the reflector and installing the unit where needed you have more than enough light in that otherwise dimly lighted work space at a minimum amount of expense.

Simple Door Lock Minimizes Tampering

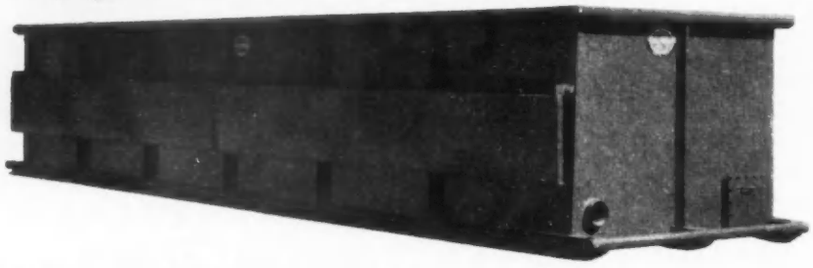
A station door lock which combines simplicity with ruggedness, yet permits the use of two padlocks, can be built with few materials and a minimum of machine work. The materials consist of two 2-inch sections of 4-inch channel iron, a padlock eye and a short length of ¾ or 1-inch round bar stock, the latter having flats milled in the ends, and holes bored for attachment of the locks.



After the padlock eye is installed, the two channel sections, with holes bored through from side to side for the bar, are installed on the door and jam as shown in the accompanying photograph. By positioning the bolt heads behind the bar, danger of tampering is minimized. Care should be taken, also, in keeping to a minimum the clearance between the bar and the holes through which it is passed.

JOE STINE

Portable Steel Mud Pits



Safety, economy, and ease in handling drilling mud are major features. They reduce mud losses. Prevent contamination. Permit easier control over weight and viscosity. Provide better and faster means of mixing weighting materials. Standard pits, 6 feet deep, 30 feet long, 7'6" wide. Capacity, approximately 230 barrels. Bottoms of ¼" steel plate; sides, 3/16" or ¼". Heavy reinforcing—3" channel iron ribs on 36" centers—provides strength and rigidity along the sides. Skid-mounted; pits may be hauled on any standard oil field trailer. Special Stine Mud Pits with valves, shale shakers, mud guns, baffles and other features also available.

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Blowdown Trap Condenses Steam in Residential Area

The blow-down from a set of boilers is no problem at all in isolated areas where most oil wells are drilled. However in the few instances where a rig is located close to civilization, a farmer may complain about his corn crop being turned white or a housewife having her wash steam-cleaned. To avoid this, an operator drilling close to a residential section had the blow-down diverted into a long, large pipe. Now when it is decided to blow down the boilers, the steam is practically all condensed before it reaches the end of the pipe.

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With a Totco Recorder you have simplicity of operation, sustained accuracy in recording, and durability. What's more, these famous instruments are constantly being modified and improved. You can depend on your Totco even in the deepest, hottest wells. . . . Be sure you know, use Totco!

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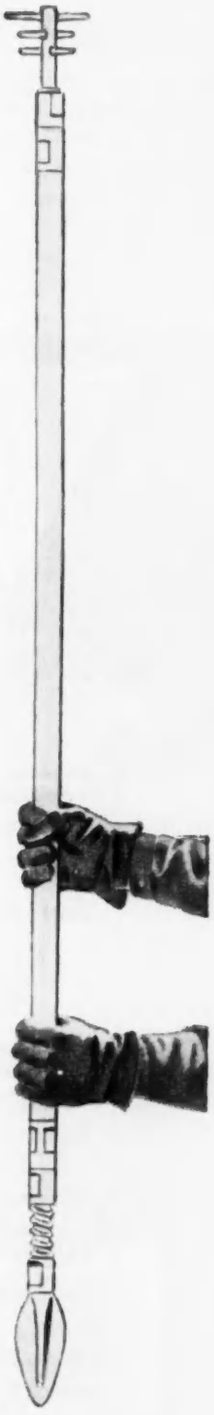

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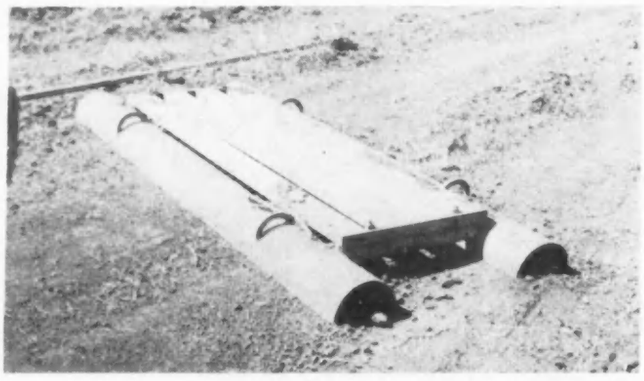
Wooden Decking Improves Road Scraper

The shop-made road scraper, usually made by splitting a short length of 8- or 10-inch casing and welding the two halves to a frame, too often is hastily put together by the welder without too much consideration being given for the variety of conditions under which it will be used in the field.



One of the common practices is that of loading the scraper with extra weights such as scrap iron, stones or concrete, in order to do a more effective job in grading a particularly rough road or location. If the scraper sections are placed too close together, or are welded in an all-steel framework, it often is difficult to hold such weight materials on it, even when they are lashed down, since there is a tendency for them to be shaken off.

One company builds an efficient scraper in generally the same manner but provides these refinements: The scrapers are spaced about 3 feet apart and, between them, is mounted a small platform of heavy 3x12 planks, the latter bolted at each end to angle iron welded to the scraper spacers.

The planked flat area provides "bite" which minimizes slipping when additional weights are placed on it. The half-circle rings cut from steel plate and welded to either end, and on both sides, of the scraper, provide a ready hitch for the tow line and from either side; also permit lashing-down of any weights carried on the deck.

Rack Keeps Hard Hats Handy, in Good Shape

This hard hat holder should help the crew keep their hard hats in good condition as well as providing a place where they can be readily found. This hat holder can be constructed by supporting two lengths of small pipe from the doghouse roof supports. The two rods should be spaced so that a hard hat is supported by its brim when placed upside down between the two rods. This manner of hanging hard hats gives the doghouse a well ordered look.

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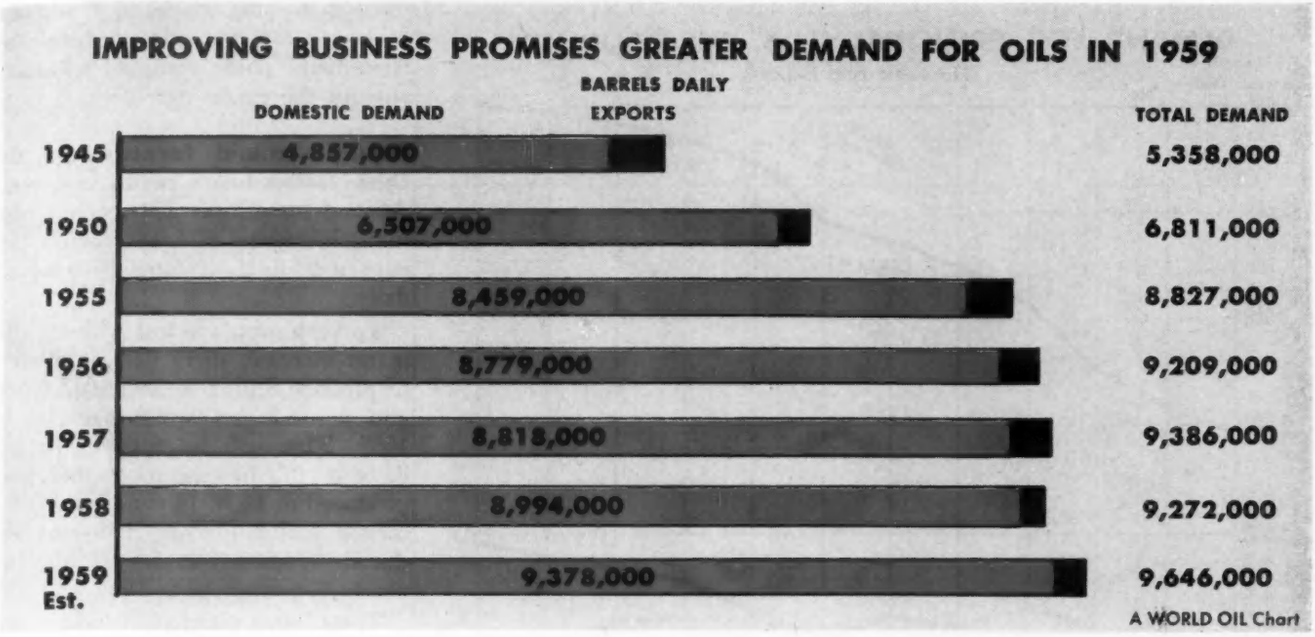


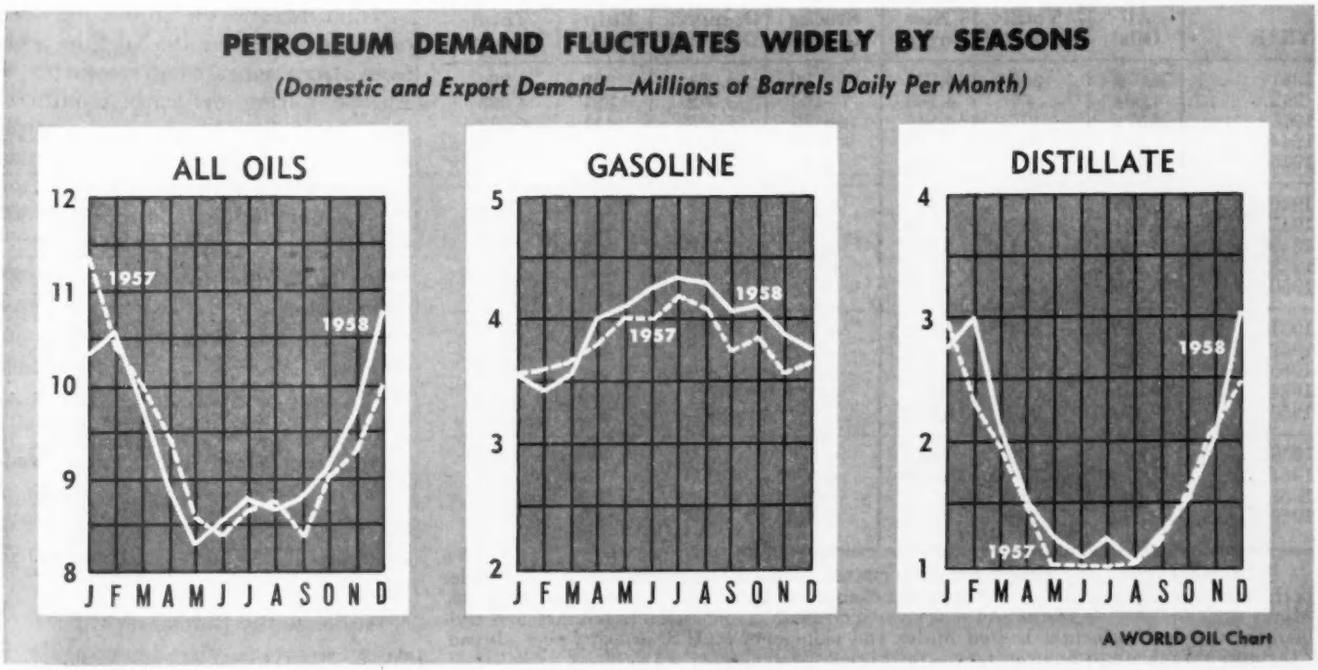
Supply-demand outlook is improving

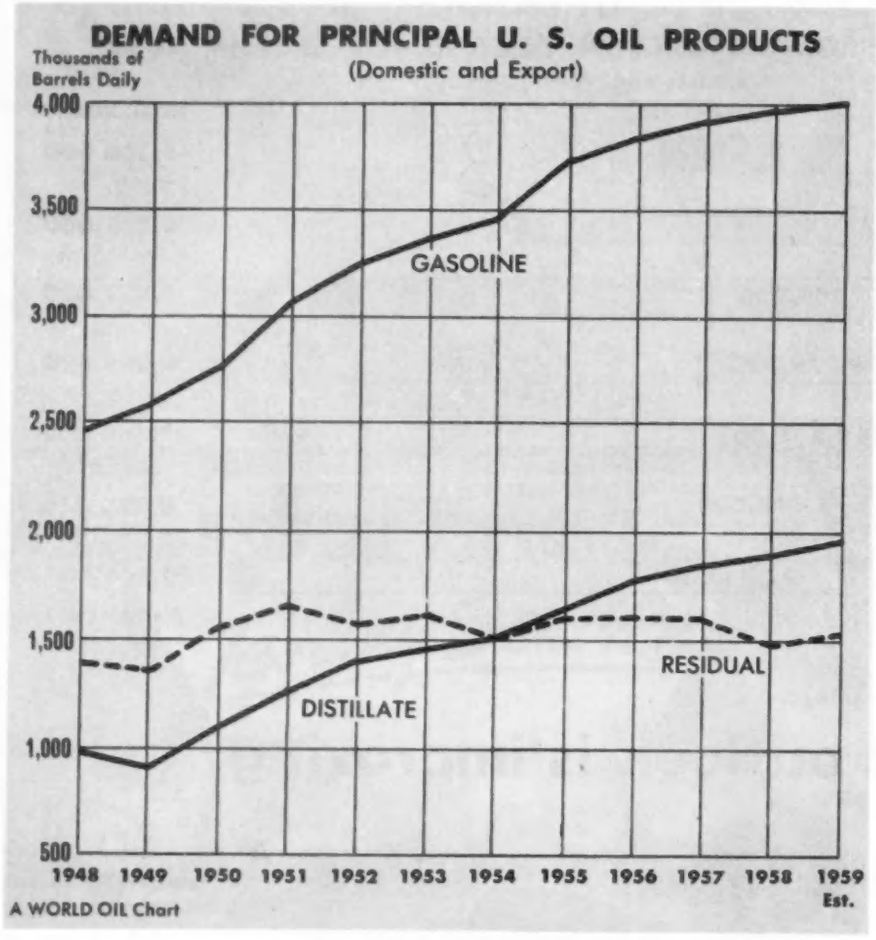
DOMESTIC PRODUCTION of crude oil and natural gas liquids will experience a considerably improved market during 1959. Reasons:

- Predicted 4.3 percent increase in demand for all oils, resulting from an expected upturn in U.S. business activity.
- Excellent possibility that product curbs will be included in the new import program expected early in March.
- Progress in liquidating surplus crude and product inventories during 1958.

This situation contrasts sharply with 1958, when crude production and refinery output were drastically reduced, due to lagging demand and record breaking imports.

Imports are an important source of all oils in the United States and currently there is considerable doubt as to what the levels actually will be this year. However, the U.S. Bureau of Mines forecasts that crude imports will remain about the same as 1958, while refined products will decrease 13.3 percent to 608,000 barrels per day. If imports should be greater than





forecast by the Bureau, it will be necessary for domestic producers to cut their crude output whatever amount the excess may be.

Supply-demand forecast. If the above factors follow predictions, total demand for all oils will reach a new high, increasing 374,000 barrels per day to a total of 9,646,000 barrels daily.

To keep supply in line with the demand increase, there will be a need to produce 8,113,000 barrels of crude and natural gas liquids per day in 1959. This will be 610,000 barrels daily or 8.1 percent more than was produced in 1958. In comparison, domestic production in 1958 was reduced 476,000 barrels per day or nearly 6 percent from 1957.

Total new supply, including domestic production and total imports of 1,558,000 barrels of crude and products per day, is expected to reach a new peak of 9,671,000 barrels daily this year, 517,000 barrels per day or 5.7 percent more than the 1958 levels.

This outlook for petroleum industry operations is indicated by the U.S. Bureau of Mines in its forecast of petroleum supply and demand during 1959.

Demand trends. Should total demand increase 4.3 percent over 1958 as forecast, it will mark the resumption of the 4 to 6 percent increases which have occurred nearly every year during the post war era until 1957 and 1958.

Total demand for all oils increased only 1.9 percent in 1957 despite a big assist from emergency shipments to Europe during the early months of that year. Exports dropped sharply after the Suez Crisis, but for the year they were still 32 percent higher than 1956. Domestic demand increased less than 0.1 percent during 1957.

In 1958, the trends of domestic consumption and exports reversed those of 1957. Domestic demand increased 2 percent and exports were cut in half to the lowest levels in recent history. Total demand decreased 1.2 percent from 1957. Also, crude and product imports were at the highest levels in history during 1958, reaching an average of 1,651,000 barrels per day.

Although the Bureau of Mines forecasts exports to be down again in

U. S. Petroleum Supply and Demand

(Source: U. S. Bureau of Mines.)

(THOUSANDS OF BARRELS DAILY)

	SUPPLY				DEMAND		
YEAR	U.S. Prod. All Oils[1]	Total Imports[2]	Total New Supply	Change in Stocks All Oils[3]	Domestic Demand[4]	Exports and Ship-ments[5]	Total Demand
1941.....	4,073	266	4,339	— 30	4,071	298	4,369
1942.....	4,034	99	4,133	—160	3,972	321	4,293
1943.....	4,372	174	4,546	— 33	4,168	411	4,579
1944.....	4,864	252	5,116	— 17	4,562	571	5,133
1945.....	5,010	311	5,321	— 37	4,857	501	5,358
1946.....	5,073	377	5,450	+119	4,912	419	5,331
1947.....	5,451	437	5,888	— 14	5,451	451	5,902
1948.....	5,921	514	6,435	+292	5,775	368	6,143
1949.....	5,477	645	6.122	— 8	5,803	327	6,130
1950.....	5,906	850	6,756	— 55	6,507	304	6,811
1951.....	6,720	844	7,564	+ 89	7,053	422	7,475
1952.....	6,868	952	7,820	+108	7,280	432	7,712
1953.....	7,113	1,034	8,147	+142	7,604	401	8,005
1954.....	7,035	1,052	8,087	— 29	7,760	355	8,115
1955.....	7,579	1,248	8,827	.....	8,459	368	8,827
1956.....	7,952	1,436	9,388	+179	8,779	430	9,209
1957.....	7,979	1,574	9,553	+167	8,818	568	9,386
1958.....	7,503	1,651	9,154	—118	8,994	278	9,272
1959 Est....	8,113	1,558	9,671	+ 25	9,378	268	9,646

[1] Includes crude oil, natural gasoline, related products, and benzol. [2] Includes both refined and crude oil. [3] Includes changes in both refined and crude oil stocks. Minus signs indicate decreases and plus signs increases. [4] Includes military and civilian demand in continental United States and shipments to U.S. armed forces abroad. [5] Includes shipments to non-contiguous territories.

Forecast of Petroleum Demand and Supply in 1959, Compared with 1958 and 1957

(All Data from U. S. Bureau of Mines)

THOUSANDS OF BARRELS

ITEM	1957 Actual	1958 Estimate	% Dif. 57–58	1959 Forecast	% Dif. 58–59
DEMAND					
All Oils, Total Demand	**3,425,806**	**3,384,280**	**— 1.2**	**3,520,790**	**+ 4.0**
(Daily Average)	9,386	9,272	— 1.2	**9,646**	+ 4.0
Domestic Demand	3,218,619	3,282,810	+ 2.0	**3,422,970**	+ 4.3
(Daily Average)	8,818	8,994	+ 2.0	**9,378**	+ 4.3
Exports, Total	207,187	101,470	—51.0	**97,820**	— 3.6
(Daily Average)	568	278	—51.0	**268**	— 3.6
Crude Exports	50,243	4,380	—91.3	**3,650**	—16.7
(Daily Average)	138	12	—91.3	**10**	—16.7
Refined Exports	156,944	97,090	—38.1	**94,170**	— 3.0
(Daily Average)	430	266	—38.1	**258**	— 3.0
Gasoline, Total Demand	**1,431,541**	**1,442,115**	**+ 0.7**	**1,481,170**	**+ 2.7**
(Daily Average)	3,922	3,951	+ 0.7	**4,058**	+ 2.7
Domestic Demand	1,392,953	1,416,200	+ 1.7	**1,455,985**	+ 2.8
(Daily Average)	3,816	3,880	+ 1.7	**3,989**	+ 2.8
Exports	38,588	25,915	—32.9	**25,185**	— 2.8
(Daily Average)	106	71	—32.9	**69**	— 2.8
Kerosine, Total Demand	**112,959**	**115,705**	**+ 2.4**	**121,180**	**+ 4.7**
(Daily Average)	309	317	+ 2.4	**332**	+ 4.7
Domestic Demand	107,701	114,610	+ 6.4	**120,085**	+ 4.8
(Daily Average)	295	314	+ 6.4	**329**	+ 4.8
Exports	5,258	1,095	—79.2	**1,095**	.....
(Daily Average)	14	3	—79.2	**3**	.....
Residual Fuel Oil, Total Demand	**587,371**	**544,945**	**— 7.2**	**555,895**	**+ 2.0**
(Daily Average)	1,609	1,493	— 7.2	**1,523**	+ 2.0
Domestic Demand	548,801	519,395	— 5.4	**532,900**	+ 2.6
(Daily Average)	1,504	1,423	— 5.4	**1,460**	+ 2.6
Exports	38,570	25,550	—33.8	**22,995**	—10.0
(Daily Average)	106	70	—33.8	**63**	—10.0
Distillate Fuel Oil, Total Demand	**663,842**	**667,585**	**+ 0.7**	**693,865**	**+ 3.9**
(Daily Average)	1,819	1,829	+ 0.7	**1,901**	+ 3.9
Domestic Demand	616,090	646,780	+ 5.0	**673,060**	+ 4.1
(Daily Average)	1,688	1,772	+ 5.0	**1,844**	+ 4.1
Exports	47,752	20,805	—56.4	**20,805**	.....
(Daily Average)	131	57	—56.4	**57**	.....
***All Other Oils, Total Demand**	**630,093**	**613,930**	**— 2.6**	**668,680**	**+ 8.9**
(Daily Average)	1,726	1,682	— 2.6	**1,832**	+ 8.9
Domestic Demand	553,074	585,825	+ 6.0	**640,940**	+ 9.4
(Daily Average)	1,515	1,605	+ 6.0	**1,756**	+ 9.4
Exports	77,019	28,105	—63.5	**27,740**	— 1.3
(Daily Average)	211	77	—63.5	**76**	— 1.3
CHANGE IN STOCKS					
All Oils	**+60,926**	**—43,070**	.....	**+ 9,125**	.....
(Daily Average)	+ 167	— 118	.....	**+ 25**	.....
Crude Oil	+15,799	—24,820	.....	.....	.....
(Daily Average)	+ 43	— 68	.....	.....	.....
Natural Gas Liquids	+ 1,008	.....	.....	.....	.....
(Daily Average)	+ 3	.....	.....	.....	.....
Refined Products	+44,119	—18,250	.....	**+ 9,125**	.....
(Daily Average)	+ 121	— 50	.....	**+ 25**	.....
NEW SUPPLY					
Total New Supply	**3,486,732**	**3,341,210**	**— 4.2**	**3,529,915**	**+ 5.6**
(Daily Average)	9,553	9,154	— 4.2	**9,671**	+ 5.6
Domestic Production, Total	**2,912,143**	**2,738,595**	**— 6.0**	**2,961,245**	**+ 8.1**
(Daily Average)	7,978	7,503	— 6.0	**8,113**	+ 8.1
Crude Oil	2,616,901	2,446,595	— 6.5	**2,657,200**	+ 8.6
(Daily Average)	7,170	6,703	— 6.5	**7,280**	+ 8.6
Other Oils	295,242	292,000	— 1.1	**304,045**	+ 4.1
(Daily Average)	809	800	— 1.1	**833**	+ 4.1
Imports, Total	**574,589**	**602,615**	**+ 4.9**	**568,670**	**— 5.6**
(Daily Average)	1,574	1,651	+ 4.9	**1,558**	— 5.6
Crude Oil	373,255	346,750	— 7.1	**346,750**	.....
(Daily Average)	1,023	950	— 7.1	**950**	.....
Refined Products	201,334	255,865	+27.0	**221,920**	—13.3
(Daily Average)	552	701	+27.0	**608**	—13.3
Crude Oil Runs to Stills, Total	**2,890,436**	**2,781,300**	**— 3.8**	**2,969,640**	**+ 6.8**
(Daily Average)	7,919	7,620	— 3.8	**8,136**	+ 6.8

* Includes crude oil used as fuel and lost in handling, liquefied gases, petroleum coke, asphalt, road oil, etc., and refinery losses.

Demand for All Oils and Gasoline, by Years

Total, domestic, and export demand supplied by U. S. petroleum industry.
(Source: U. S. Bureau of Mines.)
THOUSANDS OF BARRELS

	ALL OILS						GASOLINE					
	Total Demand		Domestic		Exports			Total Demand		Domestic		Exports	
Year	Annual	Daily	Total	Daily	Total	Daily	Year	Annual	Daily	Total	Daily	Total	Daily
1918							1918	93,599	256	79,949	219	13,650	37
1919	438,434	1,201	374,541	1,026	63,893	175	1919	97,790	268	88,648	243	9,142	25
1920	535,382	1,463	456,764	1,245	79,618	217	1920	124,623	340	108,945	298	15,678	43
1921	592,402	1,450	457,521	1,253	71,881	197	1921	130,203	357	116,840	320	13,363	37
1922	605,540	1,659	530,990	1,455	74,550	204	1922	152,132	417	137,770	377	14,362	39
1923	754,361	2,067	652,027	1,786	102,334	280	1923	195,556	536	174,462	478	21,094	58
1924	805,070	2,120	687,742	1,879	117,328	321	1924	225,737	617	196,586	537	29,151	80
1925	840,818	2,304	726,797	1,991	114,021	312	1925	264,429	724	232,745	638	31,684	87
1926	912,893	2,501	780,487	2,138	132,406	363	1926	311,897	854	268,128	735	43,769	120
1927	944,762	2,588	802,499	2,199	142,263	390	1927	350,318	960	305,367	837	44,951	123
1928	1,014,716	2,772	859,759	2,349	154,957	423	1928	392,293	1,072	388,881	926	53,412	146
1929	1,103,203	3,022	940,083	2,576	163,120	447	1929	444,937	1,219	328,878	1,049	62,059	170
1930	1,083,511	2,968	927,016	2,540	156,495	429	1930	463,184	1,269	397,609	1,089	65,575	180
1931	1,027,274	2,814	902,920	2,474	124,354	341	1931	453,559	1,243	407,843	1,117	45,716	125
1932	938,757	2,565	835,482	2,283	103,275	282	1932	413,229	1,129	377,791	1,032	35,438	97
1933	975,214	2,672	868,487	2,379	106,727	292	1933	409,815	1,123	380,494	1,042	29,321	80
1934	1,034,672	2,835	920,165	2,521	114,507	314	1934	435,025	1,192	410,339	1,124	24,686	68
1935	1,112,672	3,048	983,685	2,695	128,987	353	1935	465,423	1,275	434,810	1,191	30,613	84
1936	1,224,748	3,346	1,092,754	2,986	131,994	361	1936	510,252	1,394	481,606	1,316	28,646	78
1937	1,342,516	3,678	1,169,682	3,205	172,834	473	1937	557,658	1,528	519,352	1,423	38,306	105
1938	1,330,850	3,646	1,137,122	3,115	193,728	531	1938	573,112	1,570	523,003	1,433	50,109	137
1939	1,420,035	3,890	1,231,067	3,373	188,959	518	1939	600,147	1,644	555,509	1,522	44,638	122
1940	1,457,086	3,981	1,326,620	3,625	130,466	356	1940	614,867	1,680	589,490	1,611	25,377	69
1941	1,594,609	4,369	1,485,779	4,071	108,830	298	1941	694,588	1,903	667,505	1,829	27,083	74
1942	1,566,815	4,293	1,449,908	3,972	116,907	320	1942	624,207	1,710	589,110	1,614	35,097	96
1943	1,671,383	4,579	1,521,426	4,168	149,957	411	1943	619,815	1,698	568,238	1,557	51,577	141
1944	1,878,879	5,134	1,671,263	4,566	207,616	567	1944	733,019	2,003	632,482	1,728	100,537	275
1945	1,955,668	5,358	1,772,685	4,857	182,983	501	1945	784,392	2,149	696,333	1,908	88,059	241
1946	1,945,909	5,331	1,792,786	4,912	153,123	419	1946	780,751	2,139	735,417	2,015	45,334	124
1947	2,154,280	5,902	1,989,803	5,451	164,477	451	1947	842,464	2,308	795,015	2,178	47,449	130
1948	2,218,352	6,143	2,113,678	5,775	134,674	368	1948	908,572	2,482	871,270	2,380	37,302	102
1949	2,237,626	6,130	2,118,250	5,803	119,376	327	1949	953,060	2,611	913,713	2,503	39,347	108
1950	2,486,363	6,812	2,375,057	6,507	111,306	305	1950	1,019,011	2,792	994,290	2,724	24,721	68
1951	2,728,465	7,475	2,574,413	7,053	154,052	422	1951	1,132,087	3,102	1,091,951	2,992	40,136	110
1952	2,822,595	7,712	2,664,407	7,280	158,188	432	1952	1,193,565	3,261	1,157,280	3,162	36,285	99
1953	2,921,912	8,005	2,775,321	7,604	146,591	401	1953	1,243,700	3,407	1,205,775	3,303	37,925	104
1954	2,962,157	8,115	2,832,424	7,760	129,733	355	1954	1,264,961	3,466	1,230,595	3,371	34,366	94
1955	3,221,963	8,827	3,087,775	8,459	134,188	368	1955	1,368,726	3,750	1,334,205	3,655	34,521	95
1956	3,370,573	9,209	3,213,187	8,779	157,386	430	1956	1,408,651	3,849	1,373,079	3,752	35,572	97
1957	3,425,806	9,386	3,218,619	8,818	207,187	568	1957	1,431,541	3,922	1,392,953	3,816	38,588	106
1958	3,384,200	9,272	3,282,810	8,994	101,470	278	1958	1,442,115	3,951	1,416,200	3,880	25,915	71
1959 Est.	3,520,790	9,646	3,422,970	9,378	97,820	268	1959 Est.	1,481,170	4,058	1,455,985	3,989	25,185	69

Demand for Distillate Fuel and Residual Fuel Oil, by Years

Total, domestic and export demand supplied by U. S. petroleum industry
(Source: U. S. Bureau of Mines)
THOUSANDS OF BARRELS

	DISTILLATE						RESIDUAL					
	Total Demand		Domestic		Exports			Total Demand		Domestic		Exports	
Year	Annual	Daily	Total	Daily	Total	Daily	Year	Annual	Daily	Total	Daily	Total	Daily
1932	73,883	202	65,101	178	8,782	24	1932	250,268	684	239,056	653	11,212	31
1933	76,172	209	64,748	177	11,424	31	1933	268,096	734	258,957	709	9,139	25
1934	89,330	245	74,824	205	14,506	40	1934	279,646	766	265,547	727	14,099	39
1935	102,277	280	86,028	236	16,249	44	1935	293,394	804	280,695	769	12,699	35
1936	123,205	337	102,757	281	20,448	56	1936	322,319	881	307,884	841	14,435	39
1937	146,970	403	116,841	320	30,129	82	1937	340,818	934	325,514	892	15,304	42
1938	147,090	403	117,449	322	29,641	81	1938	309,753	849	291,833	799	17,920	49
1939	166,993	457	134,973	370	32,020	88	1939	340,973	934	323,488	886	17,485	48
1940	179,991	492	160,851	439	19,140	52	1940	356,272	973	340,163	929	16,109	44
1941	189,749	520	172,824	473	16,925	46	1941	397,536	1,089	383,422	1,050	14,114	39
1942	207,236	568	185,661	509	21,575	59	1942	417,792	1,145	405,697	1,111	12,095	33
1943	233,067	639	208,110	570	24,957	68	1943	481,902	1,320	467,008	1,279	14,894	41
1944	252,811	691	209,320	572	43,491	119	1944	524,556	1,433	512,020	1,399	12,536	34
1945	259,580	711	226,084	619	33,496	92	1935	535,092	1,466	523,423	1,434	11,669	32
1946	272,381	746	242,894	665	29,487	81	1946	489,217	1,340	480,029	1,315	9,188	25
1947	328,150	899	298,273	817	29,877	82	1947	529,133	1,450	518,510	1,421	10,623	29
1948	361,869	989	340,576	930	21,293	58	1948	513,554	1,403	500,543	1,368	13,011	35
1949	341,573	936	329,278	902	12,295	34	1949	508,662	1,394	496,021	1,359	12,641	35
1950	407,538	1,117	394,885	1,082	12,653	35	1950	570,021	1,562	553,793	1,517	16,228	44
1951	471,657	1,292	449,102	1,230	22,555	62	1951	593,320	1,625	564,321	1,546	28,999	79
1952	512,862	1,405	479,347	1,310	33,515	92	1952	582,866	1,593	555,165	1,517	27,701	76
1953	520,403	1,426	488,075	1,337	32,328	89	1953	586,465	1,607	560,474	1,536	25,991	71
1954	550,570	1,508	526,347	1,442	24,223	66	1954	549,070	1,504	522,317	1,431	26,753	73
1955	605,733	1,659	581,128	1,592	24,605	67	1955	590,856	1,619	557,057	1,526	33,799	93
1956	650,391	1,777	615,856	1,682	34,535	95	1956	590,690	1,614	562,813	1,538	27,877	76
1957	663,842	1,819	616,090	1,688	47,752	131	1957	587,371	1,609	548,801	1,504	38,570	106
1958	667,585	1,829	646,780	1,772	20,805	57	1958	544,945	1,493	519,395	1,423	25,550	70
1959 Est.	693,865	1,901	673,060	1,844	20,805	57	1959 Est.	555,895	1,523	532,900	1,460	22,995	63

1959, imports may decrease also—for the second time since 1942.

Gasoline demand to rise. Total demand for gasoline, the industry's largest source of revenue, is forecast at 4,058,000, barrels per day in 1959, an increase of 107,000 barrels or 2.7 percent over 1958. This compares with the increase of 29,000 barrels daily or less than 1 percent in 1958 over the previous year.

Domestic gasoline demand will be up 109,000 barrels per day or 2.8 percent, as exports decline slightly to 69,000 barrels per day.

Distillate Fuel. Total demand for distillate fuel oil in 1959 is estimated at 1,901,000 barrels per day, up 72,000 barrels per day or 3.9 percent. That compares with a 10,000 barrels per day or about 1 percent increase in 1958 over 1957. Domestic demand for distillates will be up 72,000 barrels per day or 4.1 percent in 1959, and exports will remain the same at 57,000 barrels per day.

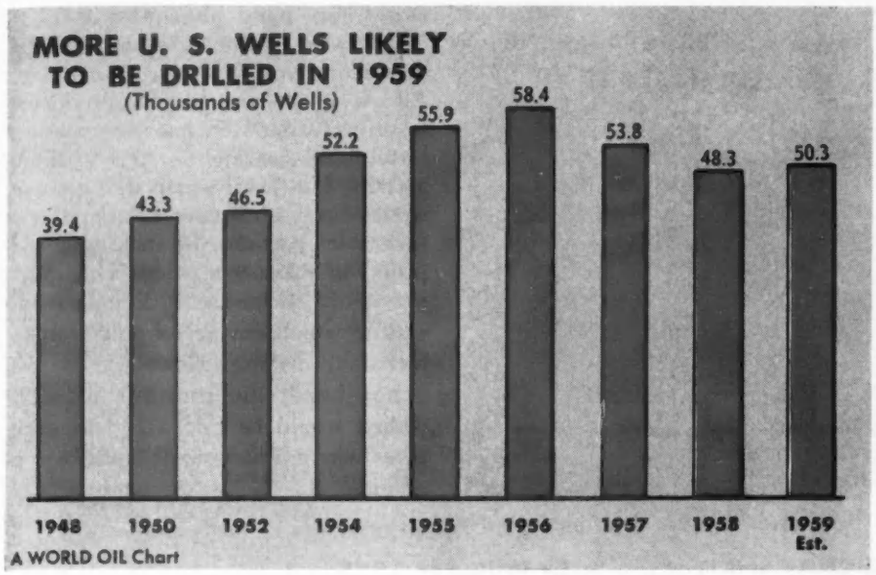
In 1958, domestic demand for distillates was up 84,000 barrels daily or 5 percent over 1957, and exports dropped to less than half the 1957 level of 131,000 barrels daily.

Kerosine. Total demand for kerosine in 1959 is estimated at 332,000 barrels daily, an increase of 15,000 barrels per day or 4.7 percent from 1958. Domestic consumption is expected to increase 15,000 barrels daily or 4.8 percent to 329,000 barrels daily.

In 1958, total demand increased 8,000 barrels daily or 2.4 percent and domestic consumption was up 19,000 barrels per day or 0.4 percent over 1957. Exports are expected to remain at the 1958 level of 3,000 barrels per day.

Residual Fuel. Total demand for residual fuel oil is expected to increase 30,000 barrels daily or 2 percent over 1957 to 1,523,000 barrels per day. That compares with a 116,000 barrels per day or 7.2 percent decrease in 1958 from the 1957 level of 1,609,000 barrels daily. Domestic demand is expected to be up 2.6 percent to 1,460,000 barrels per day, compared with a 5.4 percent decline in 1958 from the previous year's average of 1,504,000 barrels per day.

Residual exports will decrease 10 percent in 1959 to 63,000 barrels daily, compared with a 33.8 percent drop in 1958 from the 1957 level of 106,000 barrels per day.



Four percent gain forecast for U.S. drilling in 1959

IMPROVED ECONOMIC outlook for U.S. oil is expected to result in increased U.S. drilling activity during 1959. WORLD OIL's annual drilling survey, made with the aid of information received from a large number of oil companies, forecasts the drilling of 50,275 new wells and 203.0 million feet of hole in the United States during 1959. This would be 1,944 more wells, a gain of 4.0 percent, compared with the 48,331 wells completed in 1958. Footage would be 7.2 million feet, or 3.7 percent, greater than the 195.8 million feet drilled in 1958.

However, the increase forecast for U.S. drilling activity is not of sufficient volume to restore it to 1957 and 1956 levels. A total of 53,783 wells and 220.8 million feet of hole was drilled in 1957. The peak was in 1956, when 58,418 wells and 235.4 million feet of hole were drilled.

Many difficulties which hampered U.S. oil since the spring of 1957 were corrected during 1958. Consequently, the outlook is much brighter. Recovery of general business activity, plus colder than normal weather in early weeks of the year, presage a sizeable increase in oil demand during 1959.

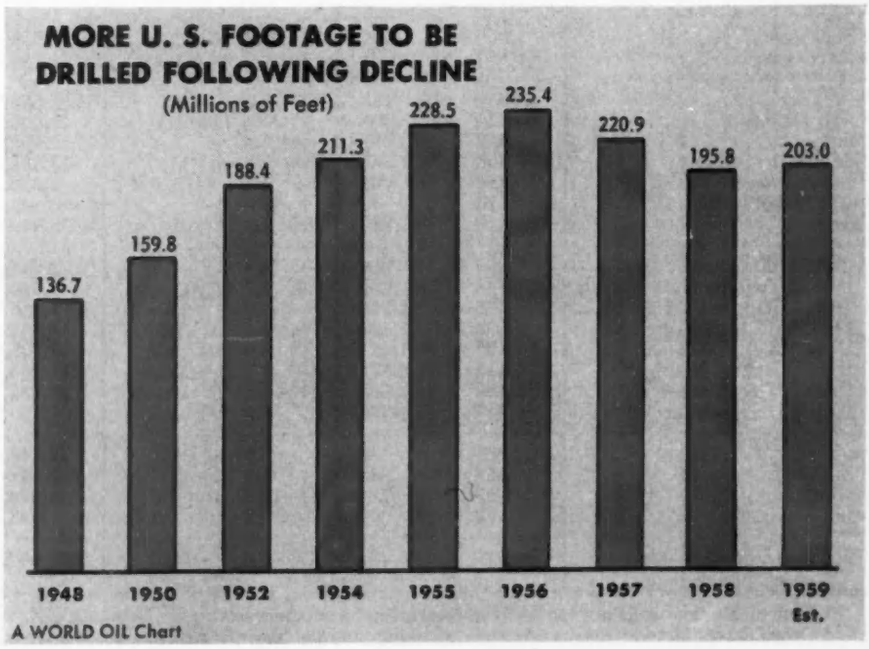
Drastic cuts in crude oil production and refinery output, coupled with government limitation of crude oil imports, resulted in unusually large liquidation of U.S. oil inventories during 1958. As a result of taking an average of 118,000 barrels per day from U.S. petroleum stocks, the industry starts 1959 with stocks in good condition, whereas a year ago they were quite excessive.

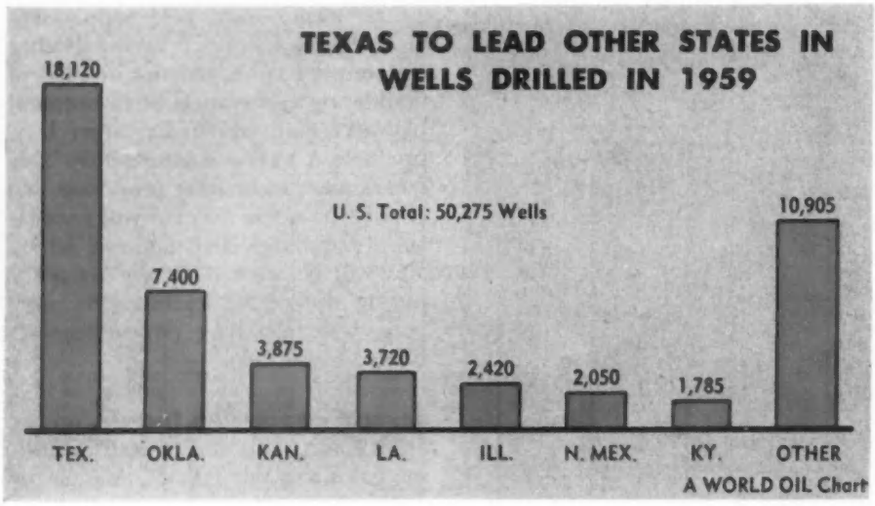
Consequently, producers and refiners no longer must hold supply volumes below current needs. Higher consumption, plus progress in 1958 in liquidating excessive U.S. inventories, will necessitate materially larger U.S. production rates during 1959. This means more income for producers. Increased producer income will encourage greater drilling activity, which also will be abetted by the tendency during the past 18 months to postpone U.S. drilling commitments whenever possible.

Several depressing factors, on the other hand, will tend to restrict drilling gains to modest levels. Among the unfavorable influences are further advances in cost without compensating price gains. This is becoming an increasingly serious problem. The possibility of a U.S. steel strike when the labor contract expires June 30 carries a strong threat of additional cost growth, plus the danger of some equipment shortages late in the year if a prolonged strike occurs.

Congressional consideration of a measure which would reduce the U.S. percentage depletion for oil also darkens outlook. If such a measure should be enacted into law, drilling activity would be retarded seriously.

Failure of the U.S. government to establish a definite import policy for 1959, and the exclusion of refined products from import restrictions, also reacts unfavorably on drilling operations because it reduces U.S. crude production rates. Drilling activity gen-





erally goes hand-in-hand with producer income, which is determined by production volumes as well as prices. Efforts on the part of U.S. producers to utilize wider well spacing may also have some bearing on U.S. drilling activity. However, wider well spacing would have both favorable and unfavorable reactions. By increasing the profits of producers, wider well spacing would encourage additional wildcatting which enviably would lead to increased drilling. However, on the other hand, the number of wells drilled would be curtailed in each field where wider well spacing is adopted.

Forecast of Wells and Footage to Be Drilled in 1959

Forecast covers all new wells to be drilled for oil or gas in 1959, salt-water disposal wells, and water or gas-input wells for repressuring and secondary recovery, but does not estimate old wells drilled deeper.

STATE or DISTRICT	TOTAL NEW WELLS				FOOTAGE (New Wells)			
	Forecast For 1959	Drilled In 1958	% Diff. '58–'59	% of U.S. 1959	Forecast For 1959	Drilled In 1958	% Diff. '58–'59	% of U.S. 1959
Alabama	**100**	85	+ 17.6	0.2	**715,000**	686,232	+ 4.2	0.4
Arkansas	**925**	852	+ 8.6	1.8	**3,035,000**	2,848,849	+ 6.5	1.5
California	**1,385**	1,367	+ 1.3	2.8	**7,100,000**	6,670,035	+ 6.4	3.5
Colorado	**885**	850	+ 4.1	1.8	**4,580,000**	4,412,384	+ 3.8	2.3
Florida	**5**	7	— 28.6	...	**49,000**	67,707	— 27.6	...
Illinois	**2,420**	2,302	+ 5.1	4.8	**5,545,000**	5,273,689	+ 5.1	2.8
Indiana	**900**	882	+ 2.0	1.8	**1,460,000**	1,424,712	+ 2.5	0.7
Kansas	**3,875**	3,759	+ 3.1	7.7	**13,450,000**	12,981,318	+ 3.6	6.6
Kentucky	**1,785**	1,812	— 1.5	3.6	**2,680,000**	3,136,144	— 14.6	1.3
Louisiana	**3,720**	3,508	+ 6.0	7.4	**29,005,000**	27,066,565	+ 7.2	14.3
North Louisiana	**1,435**	1,389	+ 3.3	2.8	**5,230,000**	5,171,217	+ 1.1	2.6
South Louisiana	**2,285**	2,119	+ 7.8	4.6	**23,775,000**	21,895,348	+ 8.6	11.7
Gulf of Mexico[1]	**500**	487	+ 2.7	1.0	**4,900,000**	4,702,522	+ 4.2	2.4
Michigan	**450**	392	+ 14.8	0.9	**1,300,000**	1,123,455	+ 15.7	0.6
Mississippi	**510**	428	+ 19.2	1.0	**4,235,000**	3,641,127	+ 16.3	2.1
Missouri	**20**	16	+ 25.0	...	**20,000**	16,167	+ 23.7	...
Montana	**345**	306	+ 12.7	0.7	**1,760,000**	1,607,096	+ 9.5	0.9
Nebraska	**615**	697	— 11.8	1.2	**3,690,000**	4,163,621	— 11.4	1.8
New Mexico	**2,050**	1,970	+ 4.1	4.1	**9,300,000**	9,107,964	+ 2.1	4.6
Southeast	**1,000**	969	+ 3.2	2.0	**4,950,000**	4,835,379	+ 2.4	2.4
Northwest	**1,050**	1,001	+ 4.9	2.1	**4,350,000**	4,272,585	+ 1.8	2.2
New York	**550**	540	+ 1.9	1.1	**660,000**	640,800	+ 3.0	0.3
North Dakota	**325**	408	— 20.4	0.6	**2,000,000**	2,642,398	— 24.3	1.0
Ohio	**1,040**	988	+ 5.3	2.1	**2,755,000**	2,582,097	+ 6.7	1.4
Oklahoma	**7,400**	7,047	+ 5.0	14.7	**22,800,000**	21,963,621	+ 3.8	11.2
Pennsylvania	**750**	793	— 5.4	1.5	**2,250,000**	2,394,409	— 6.0	1.1
South Dakota	**10**	7	+ 42.9	...	**45,000**	33,649	+ 33.7	...
Texas	**18,120**	17,283	+ 4.8	36.0	**75,910,000**	73,280,859	+ 3.6	37.4
Dist. 1: S. Central	**1,085**	988	+ 9.8	2.2	**2,735,000**	2,451,870	+ 11.5	1.3
Dist. 2: Middle Gulf	**725**	699	+ 3.7	1.4	**4,510,000**	4,280,900	+ 5.4	2.2
Dist. 3: Upper Gulf	**1,165**	1,295	— 10.0	2.3	**7,660,000**	8,366,026	— 8.4	3.8
Dist. 4: L. Gulf-S.W.	**1,350**	1,128	+ 19.7	2.7	**7,135,000**	5,861,401	+ 21.7	3.1
Dist. 5 & 6: East	**1,125**	1,033	+ 8.9	2.2	**5,725,000**	5,238,555	+ 9.3	2.8
Dist. 7-B & 9: North	**6,115**	5,874	+ 4.1	12.2	**17,400,000**	17,323,609	+ 0.4	8.6
Dist. 7-C & 8: West	**5,190**	4,960	+ 4.6	10.3	**24,985,000**	24,089,168	+ 3.7	12.1
Dist. 10: Panhandle	**1,365**	1,306	+ 4.5	2.7	**5,760,000**	5,669,330	+ 1.6	2.8
Utah	**385**	395	— 2.5	0.8	**2,110,000**	2,189,909	— 3.7	1.0
West Virginia	**850**	836	+ 1.7	1.7	**2,635,000**	2,239,102	+ 17.7	1.3
Wyoming	**785**	711	+ 10.4	1.6	**3,675,000**	3,326,345	+ 10.5	1.8
Other States*	**70**	90	— 22.2	0.1	**245,000**	309,688	— 20.9	0.1
Total United States	**50,275**	48,331	+ 4.0	100.0	**203,009,000**	195,829,942	+ 3.7	100.0

[1] Gulf of Mexico wells are included in South Louisiana figures.
* Other states include Alaska, Arizona, Georgia, Idaho, Nevada, South Carolina, Oregon, Tennessee and Washington.

Drilling gains are anticipated in most states. The largest increase is forecast for Texas. The 1959 prediction for Texas is 18,120 wells and 75.9 million feet of hole, a gain of 837 wells and 2.6 million feet of hole. Sizeable advances are predicted for North Texas and West Texas, and small gains in all other Texas districts.

Second ranking state is Oklahoma, where 7,400 wells and 22.8 million feet of hole are forecast, 353 more wells and 837,000 more feet of hole than in 1958.

Percentagewise, the largest increase among more active states is forecast for Mississippi. A total of 510 wells is expected to be drilled in Mississippi during 1959, up 19.2 percent over the 428 wells drilled in 1958.

A 7.8 percent increase in South Louisiana drilling is forecast. This would boost South Louisiana to 2,285 wells compared with 2,119 in 1958. These figures include a forecast for 500 offshore wells, against 487 during 1958. North Louisiana also is expected to experience increased drilling, with 1,435 against 1,389 wells last year. This would raise the state total to 3,720 wells in 1958, in contrast with 3,508 during 1958.

Accurate forecasts of U.S. 1958 drilling activity were made by WORLD OIL in its midyear forecast, prepared in July. At that time WORLD OIL predicted the drilling of 47,972 wells and 196,794,248 feet of hole in 1958. Actual drilling totaled 48,331 wells, only 379 wells, or 0.8 percent, above the forecast.

Wells Completed Annually in United States

Source: WORLD OIL and predecessor, The Oil Weekly, with aid of other authoritative sources, 1921 to now; 1920 and earlier years from U. S. Bureau of Mines and "Petroleum in the United States and Possessions," by Arnold and Kemnitzer.

	NEW WELLS, BY CLASSES							TOTAL NEW WELLS				
	IN SEARCH OF PRODUCTION				SERVICE							
YEAR	Oil	Distillate	Gas	Dry	Water Input	Gas Injection	Salt Water Disposal	New Wells Drilled	*Footage Drilled	*Avge. Well Depth	Old Wells Drilled Deeper	Total Completions
1859-1917	380,502	....	20,183	91,821	.....	....	....	**492,506**	.....	....	....	492,506
1918	17,860	....	2,324	5,629	.....	....	....	**25,813**	.....	....	....	25,813
1919	21,041	....	2,153	6,075	.....	....	....	**29,269**	.....	....	....	29,269
1920	24,278	....	2,275	7,476	.....	....	....	**34,029**	.....	....	....	34,029
1921	14,715	....	2,081	5,193	.....	....	....	**21,989**	.....	....	....	21,989
1922	17,790	....	1,926	5,191	.....	....	....	**24,907**	.....	....	....	24,907
1923	16,182	....	2,140	6,043	.....	....	....	**24,365**	.....	....	....	24,365
1924	14,707	....	2,172	5,591	.....	....	....	**22,470**	.....	....	....	22,470
1925	17,029	....	2,536	6,847	.....	....	....	**26,412**	**76,594,800**	**2900**	....	26,412
1926	18,626	....	2,502	8,328	.....	....	....	**29,456**	**82,476,800**	**2800**	....	29,456
1927	14,382	....	2,494	7,213	.....	....	....	**24,089**	**72,267,000**	**3000**	....	24,089
1928	12,505	....	2,754	7,164	2,342	....	....	**24,765**	**74,295,000**	**3000**	....	24,765
1929	15,758	....	3,107	7,600	3,898	....	....	**30,363**	**88,052,700**	**2900**	....	30,363
1930	12,133	....	2,971	6,163	2,444	....	....	**23,711**	**68,761,900**	**2900**	....	23,711
1931	7,061	....	2,067	3,264	567	....	....	**12,959**	**37,892,116**	**2924**	....	12,959
1932	10,569	....	1,079	3,389	799	....	....	**15,836**	**47,682,196**	**3011**	....	15,836
1933	7,887	....	1,190	3,492	954	....	....	**13,523**	**39,568,298**	**2926**	....	13,523
1934	13,119	....	1,496	4,811	1,696	....	....	**21,122**	**56,141,433**	**2658**	....	21,122
1935	15,418	....	1,802	5,696	1,665	....	....	**24,581**	**67,844,939**	**2760**	....	24,581
1936	18,704	....	2,375	5,787	2,096	....	....	**28,962**	**80,996,816**	**2797**	....	28,962
1937	23,115	....	2,732	6,627	2,739	....	....	**35,213**	**105,099,189**	**2985**	....	35,213
1938	19,106	....	2,143	6,515	1,363	....	....	**29,127**	**90,585,158**	**3110**	....	29,127
1939	17,734	....	2,030	6,890	1,358	....	....	**28,012**	**85,523,094**	**3053**	....	28,012
1940	19,843	....	2,265	7,053	1,988	....	....	**31,149**	**96,182,605**	**3088**	....	31,149
1941	19,590	....	3,279	7,280	2,197	117	47	**32,510**	**99,347,714**	**3056**	822	33,332
1942	10,977	105	2,685	5,962	2,141	73	47	**21,990**	**67,903,053**	**3088**	588	22,578
1943	9,887	76	2,314	6,364	1,576	90	42	**20,349**	**61,991,857**	**3046**	471	20,820
1944	13,502	54	3,024	7,153	1,784	218	51	**25,786**	**84,378,457**	**3272**	377	26,163
1945	13,944	153	3,039	7,346	1,796	329	42	**26,649**	**92,982,113**	**3489**	491	27,140
1946	16,087	207	3,355	8,496	1,816	219	50	**30,230**	**101,124,813**	**3345**	615	30,845
1947	17,613	283	3,437	9,751	1,861	156	46	**33,147**	**112,816,124**	**3404**	651	33,798
1948	22,197	346	2,966	11,939	1,885	84	60	**39,477**	**136,709,153**	**3463**	533	40,010
1949	21,415	378	3,121	12,898	1,036	56	58	**38,962**	**138,616,941**	**3558**	535	39,497
1950	23,775	465	3,015	14,918	993	38	103	**43,307**	**159,761,732**	**3689**	751	44,058
1951	23,532	344	3,198	17,497	1,323	35	67	**45,996**	**176,757,221**	**3843**	770	46,766
1952	23,371	348	3,345	18,211	1,147	25	62	**46,509**	**188,392,695**	**4051**	537	47,046
1953	25,251	374	3,858	18,759	1,123	25	90	**49,480**	**198,431,603**	**4010**	486	49,966
1954	28,063	672	3,547	19,137	682	21	75	**52,197**	**211,296,158**	**4048**	498	52,695
1955	30,474	709	3,460	20,564	551	13	108	**55,879**	**228,529,688**	**4090**	535	56,414
1956	30,641	551	3,944	22,254	852	10	166	**58,418**	**235,386,441**	**4029**	476	58,894
1957	27,519	743	3,879	20,250	1,281	7	104	**53,783**	**220,863,576**	**4107**	390	54,173
1958†	23,774	710	4,295	18,162	1,252	5	133	**48,331**	**195,829,942**	**4052**	433	48,764
Total	1,131,676	6,518	130,558	476,799	49,205	1,521	1,351	**1,797,628**	.....	.....	9,959	1,807,587

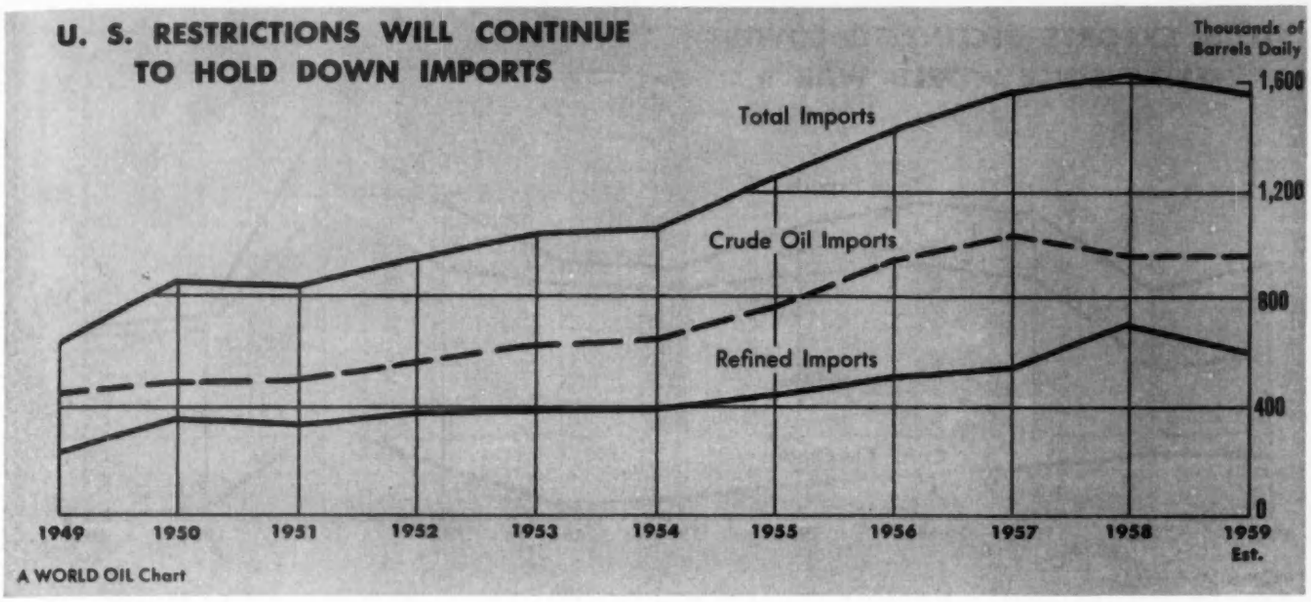
* Footage data not available prior to 1925 and estimated 1925-1930; actual statistics after 1930.
† Data for 1958 subject to slight revision.

Footage and Average Depths Drilled in All Wells in the United States in 1958

STATE or DISTRICT	TOTAL NEW WELLS (See below) 1958 Wells	1958 Footage	1958 Avge. Depth	TOTAL NEW WELLS (See below) 1957 Wells	1957 Footage	1957 Avge. Depth	OLD WELLS DRILLED DEEPER, 1958 (Productive and Dry) Wells	Footage	Avge. Depth	TOTAL ALL WELLS 1958 Wells	1958 Footage	1958 Avge. Depth	TOTAL ALL WELLS 1957 Wells	1957 Footage	1957 Avge. Depth
Alabama	85	686,232	8073	94	790,240	8407	.....	.....	.....	85	686,232	8073	94	790,240	8407
Arkansas	852	2,848,849	3344	1,104	3,371,923	3054	.....	.....	.....	852	2,848,849	3344	1,104	3,371,923	3054
California	1,367	6,670,035	4879	2,303	9,899,891	4299	96	88,642	923	1,463	6,758,677	4620	2,422	9,992,246	4126
Colorado	850	4,412,384	5191	815	4,267,074	5236	2	1,111	556	852	4,413,495	5180	816	4,268,656	5231
Florida	7	67,707	9672	9	61,732	6859	.....	.....	.....	7	67,707	9672	9	61,732	6859
Georgia	1	2,915	2915	5	25,712	5142	.....	.....	.....	1	2,915	2915	5	25,712	5142
Illinois	2,302	5,273,689	2291	2,590	5,928,958	2289	.....	.....	.....	2,302	5,273,689	2291	2,590	5,928,958	2289
Indiana	882	1,424,712	1615	718	1,211,411	1687	3	1,205	402	885	1,425,917	1611	720	1,212,688	1684
Kansas	3,759	12,981,318	3453	4,222	14,995,879	3552	1	105	105	3,760	12,981,423	3453	4,225	14,997,621	3550
Kentucky	1,812	3,136,144	1731	1,849	2,539,569	1373	.....	.....	.....	1,812	3,136,144	1731	1,849	2,539,569	1373
Louisiana	3,508	27,066,565	7716	3,772	29,746,194	7886	2	4,312	2156	3,510	27,070,877	7713	3,774	29,756,981	7885
North Louisiana	1,389	5,171,217	3723	1,433	5,234,383	3653	1	1,543	1543	1,390	5,172,760	3721	1,433	5,234,383	3653
South Louisiana	2,119	21,895,348	10333	2,339	24,511,811	10480	1	2,769	2769	2,120	21,898,118	10329	2,341	24,522,598	10475
* Gulf of Mexico	487	4,702,522	9656	648	6,176,558	9532	.....	.....	.....	487	4,702,522	9656	648	6,176,558	9532
Michigan	392	1,123,455	2866	419	1,196,801	2856	2	1,671	836	394	1,125,126	2856	432	1,211,092	2803
Mississippi	428	3,641,127	8507	390	2,897,555	7430	.....	.....	.....	428	3,641,127	8507	390	2,897,555	7430
Missouri	16	16,167	1010	10	7,647	765	.....	.....	.....	16	16,167	1010	11	8,705	791
Montana	306	1,607,096	5252	429	2,143,462	4996	2	1,713	857	308	1,608,809	5223	430	2,145,177	4989
Nebraska	697	4,163,621	5974	893	5,297,998	5933	.....	.....	.....	697	4,163,621	5974	893	5,297,998	5933
Nevada	.....	.....	.....	5	11,260	2252	.....	.....	.....	.....	.....	.....	5	11,260	2252
New Mexico	1,970	9,107,964	4623	2,192	10,354,453	4724	9	8,765	974	1,979	9,116,729	4607	2,203	10,360,976	4703
Southeast	969	4,835,379	4990	1,304	6,598,283	5060	5	2,850	570	974	4,838,229	4967	1,312	6,602,270	5032
Northwest	1,001	4,272,585	4268	888	3,756,170	4230	4	5,915	1479	1,005	4,278,500	4257	891	3,758,706	4219
New York	540	640,800	1187	530	626,676	1171	.....	.....	.....	540	640,800	1187	530	620,676	1171
North Dakota	408	2,642,398	6476	312	2,120,326	6796	2	5,579	2790	410	2,647,977	6458	313	2,123,474	6784
Ohio	988	2,582,097	2613	1,011	2,423,755	2398	10	5,875	588	998	2,587,972	2593	1,020	2,430,623	2383
Oklahoma	7,047	21,963,621	3117	5,663	19,419,287	3429	112	96,123	858	7,159	22,059,744	3081	5,751	19,494,287	3390
Pennsylvania	793	2,394,409	3019	1,125	3,635,350	3231	32	18,815	588	825	2,413,224	2925	1,126	3,637,122	3230
South Dakota	7	33,649	4807	41	140,675	3431	.....	.....	.....	7	33,649	4807	41	140,675	3431
Tennessee	30	37,650	1255	32	39,804	1244	.....	.....	.....	30	37,650	1255	32	39,804	1244
Texas	17,283	73,280,859	4240	21,290	90,102,965	4232	129	131,283	1018	17,412	73,412,142	4216	21,418	90,239,728	4213
Dist. 1: South Central	988	2,451,870	2482	1,255	3,253,106	2592	1	273	273	989	2,452,143	2479	1,262	3,259,716	2583
Dist. 2: Middle Gulf	699	4,280,900	6124	760	4,607,353	6062	3	5,263	1754	702	4,286,163	6106	762	4,610,462	6050
Dist. 3: Upper Gulf	1,295	8,366,026	6460	1,644	10,763,881	6547	5	24,826	4965	1,300	8,390,852	6455	1,647	10,768,359	6538
* Gulf of Mexico	11	86,748	7886	10	76,651	7665	.....	.....	.....	11	86,748	7886	10	76,651	7665
Dist. 4: Lower Gulf-S.W	1,128	5,861,401	5196	1,426	7,531,685	5282	8	11,387	1423	1,136	5,872,788	5170	1,432	7,539,695	5265
* Gulf of Mexico	8	84,048	10506	22	216,750	9852	.....	.....	.....	8	84,048	10506	22	216,750	9852
Dist. 5 & 6: East	1,033	5,238,555	5071	1,249	6,587,178	5274	.....	.....	.....	1,033	5,238,555	5071	1,250	6,587,640	5270
Dist. 7-B & 9: North	5,874	17,323,609	2949	7,304	21,338,545	2921	49	40,890	834	5,923	17,364,499	2932	7,354	21,390,756	2909
Dist. 7-C & 8: West	4,960	24,089,168	4857	6,202	30,120,282	4857	62	46,153	744	5,022	24,135,321	4806	6,260	30,179,994	4821
Dist. 10: Panhandle	1,306	5,669,330	4341	1,450	5,900,935	4070	1	2,491	2491	1,307	5,671,821	4340	1,451	5,903,106	4068
Utah	395	2,189,909	5544	285	1,563,758	5487	1	914	914	396	2,190,823	5532	288	1,566,721	5440
Virginia	.....	.....	.....	16	81,759	5110	.....	.....	.....	.....	.....	.....	16	81,759	5110
Washington	7	40,635	5805	4	20,459	5115	.....	.....	.....	7	40,635	5805	4	20,459	5115
West Virginia	836	2,239,102	2678	832	2,237,427	2689	17	11,967	704	853	2,251,069	2639	832	2,237,427	2689
Wyoming	711	3,326,345	4678	813	3,664,736	4508	13	12,150	935	724	3,338,495	4611	820	3,675,051	4482
† Others	52	228,488	4394	10	44,840	4484	.....	.....	.....	52	228,488	4394	10	44,840	4484
Total United States	48,331	195,829,942	4052	53,783	220,863,576	4107	433	390,230	901	48,764	196,220,172	4024	54,173	221,231,735	4084

STATE or DISTRICT	OIL Wells	OIL Footage	OIL Avge. Depth	DISTILLATE Wells	DISTILLATE Footage	DISTILLATE Avge. Depth	GAS Wells	GAS Footage	GAS Avge. Depth	DRY Wells	DRY Footage	DRY Avge. Depth	SERVICE WELLS Wells	SERVICE WELLS Footage	SERVICE WELLS Avge. Depth
Alabama	48	534,204	11129	.....	.....	.....	1	1,370	1370	36	150,658	4185	.....	.....	.....
Arkansas	465	1,326,021	2852	4	29,564	7391	33	183,570	5563	359	1,309,694	3742	.....	.....	.....
California	879	4,188,545	4765	.....	.....	.....	44	228,223	5187	437	2,238,704	5123	7	14,563	2080
Colorado	160	852,342	5327	.....	.....	.....	75	422,426	5632	615	3,137,616	5102	.....	.....	.....
Florida	.....	.....	.....	.....	.....	.....	.....	.....	.....	7	67,707	9672	.....	.....	.....
Georgia	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	2,915	2915	.....	.....	.....
Illinois	981	2,349,604	2395	.....	.....	.....	50	30,647	613	1,262	2,870,986	2275	9	22,452	2495
Indiana	310	518,690	1673	.....	.....	.....	13	12,930	995	551	877,372	1592	8	15,720	1965
Kansas	1,641	5,425,711	3306	.....	.....	.....	240	966,119	4025	1,775	6,351,528	3578	103	237,960	2310
Kentucky	742	1,308,648	1764	1	330	330	211	471,790	2236	845	1,341,100	1587	13	14,276	1098
Louisiana	1,607	11,075,714	6892	224	2,700,772	12057	274	1,942,615	7090	1,400	11,321,431	8087	3	26,033	8678
North Louisiana	631	1,829,782	2900	8	68,287	8536	165	670,948	4066	585	2,602,200	4448	.....	.....	.....
South Louisiana	976	9,245,932	9473	216	2,632,485	12187	109	1,271,667	11667	815	8,719,231	10698	3	26,033	8678
* Gulf of Mexico	311	2,872,959	9238	34	389,049	11443	24	257,497	10729	118	1,183,017	10026	.....	.....	.....
Michigan	159	461,844	2905	.....	.....	.....	39	112,776	2892	194	548,835	2829	.....	.....	.....
Mississippi	157	1,503,426	9576	12	105,472	8789	14	100,496	7178	245	1,931,733	7885	.....	.....	.....
Missouri	2	1,591	796	.....	.....	.....	4	1,858	465	10	12,718	1272	.....	.....	.....
Montana	150	893,356	5956	1	12,185	12185	6	26,418	4403	146	662,124	4535	3	13,013	4338
Nebraska	206	1,256,453	6099	.....	.....	.....	.....	.....	.....	490	2,902,515	5924	1	4,653	4653
New Mexico	1,015	4,766,821	4696	8	76,775	9597	551	2,463,967	4472	392	1,783,829	4551	4	16,572	4143
Southeast	681	3,319,896	4875	6	62,657	10443	29	198,253	6836	249	1,238,001	4972	4	16,572	4143
Northwest	334	1,446,925	4332	2	14,118	7059	522	2,265,714	4340	143	545,828	3817	.....	.....	.....
New York	288	302,400	1050	.....	.....	.....	12	40,800	3400	24	38,400	1600	216	259,200	1200
North Dakota	246	1,662,401	6758	.....	.....	.....	.....	.....	.....	162	979,997	6049	.....	.....	.....
Ohio	493	1,365,050	2769	.....	.....	.....	262	689,931	2633	233	527,116	2262	.....	.....	.....
Oklahoma	3,687	11,430,036	3100	74	652,767	7605	378	1,829,007	4839	2,332	7,218,776	3096	576	923,035	1602
Pennsylvania	223	387,507	1738	.....	.....	.....	359	1,374,670	3829	113	453,243	4011	98	178,989	1826
South Dakota	1	6,845	6845	.....	.....	.....	.....	.....	.....	6	26,804	4467	.....	.....	.....
Tennessee	.....	.....	.....	.....	.....	.....	3	2,250	750	27	35,400	1311	.....	.....	.....
Texas	9,570	38,156,082	3987	385	3,242,010	8421	1,130	5,853,334	5180	5,876	25,278,670	4302	322	750,763	2332
Dist. 1: South Central	513	1,002,308	1954	25	230,305	9212	44	179,062	4070	406	1,040,195	2562	.....	.....	.....
Dist. 2: Middle Gulf	193	1,092,295	5660	94	789,123	8395	87	409,114	4702	324	1,986,746	6132	1	3,622	3622
Dist. 3: Upper Gulf	538	2,933,027	5452	92	894,222	9720	85	625,802	7362	580	3,912,975	6747	.....	.....	.....
* Gulf of Mexico	.....	.....	.....	.....	.....	.....	2	12,971	6486	9	73,777	8197	.....	.....	.....
Dist. 4: Lower Gulf-S.W	315	1,416,828	4498	116	913,406	7874	95	436,933	4599	602	3,094,234	5140	.....	.....	.....
† Gulf of Mexico	.....	.....	.....	2	21,399	10700	.....	.....	.....	6	62,649	10442	.....	.....	.....
Dist. 5 & 6: East	484	2,300,152	4752	22	162,160	7371	71	493,662	6953	455	2,278,814	5008	1	3,767	3767
Dist. 7-B & 9: North	3,037	8,424,136	2774	25	148,907	5956	238	1,209,132	5080	2,377	7,156,364	3011	197	385,070	1955
Dist. 7-C & 8: West	3,814	18,407,915	4826	4	49,425	12356	108	792,493	7338	914	4,486,302	4908	120	353,033	2942
Dist. 10: Panhandle	676	2,579,421	3816	7	54,462	7780	402	1,707,136	4247	218	1,323,040	6069	3	5,271	1757
Utah	254	1,462,930	5760	1	6,031	6031	27	121,426	4497	113	599,522	5306	.....	.....	.....
Washington	.....	.....	.....	.....	.....	.....	.....	.....	.....	7	40,635	5805	.....	.....	.....
West Virginia	180	390,365	2169	.....	.....	.....	494	1,466,008	2968	138	346,729	2513	24	36,000	1500
Wyoming	309	1,473,252	4768	.....	.....	.....	57	377,067	6615	342	1,463,250	4279	3	12,776	4259
† Others	1	5,410	5410	.....	.....	.....	18	99,900	5550	33	123,178	3733	.....	.....	.....
Total United States	23,774	93,105,248	3916	710	6,735,906	9487	4,295	18,819,598	4382	18,162	74,643,185	4110	1,390	2,526,005	1817

* Gulf of Mexico wells are included in their respective districts. † Others include: Alaska, Arizona, Idaho, Oregon South Carolina.



Imports at all-time high despite curbs

AFTER REACHING a record high last year despite the government's program for voluntary restrictions, it is anticipated some reduction in imports may occur in 1959. This will depend on whether restrictions are expanded to cover refined products as well as crude oil and unfinished products.

Assuming action will be taken on products, the U.S. Bureau of Mines forecasts a 6.5 percent decline in total imports during 1959. Crude imports are expected to average about 950,000 barrels per day, the same as in 1958, while the forecast for product imports is set at 608,000 barrels daily, down 13.3 percent from the 1958 level of 701,000 barrels daily.

Without curbs, refined product imports have increased 335 percent, from 161,000 barrels per day to 701,000 barrels per day in the 10-year period, 1948-1958. Crude imports increased 169 percent to 950,000 barrels per day during the same period. This steady increase despite restrictions on crude in recent years, boosted total imports to the highest level in history in 1958, averaging 1.65 million barrels per day, or 4.9 percent over the 1957 level and 321 percent over the 514,000 barrels per day of crude and products imported in 1948.

An important year. There is no question that 1959 will be a decisive year regarding the oil imports problem. Last summer, Congress passed the Trade Agreements Act, with a defense amendment authorizing the Administration to limit imports in the interest of national security.

Crude and unfinished oil import allocations, amounting to 934,100 barrels daily for crude, have been extended through February 28. At that time, a new plan may be formulated.

Since its inception in July, 1957, the present program has been broadened to include the U.S. West Coast. The program is proving difficult to administer, and is becoming increasingly more complex. There is reason

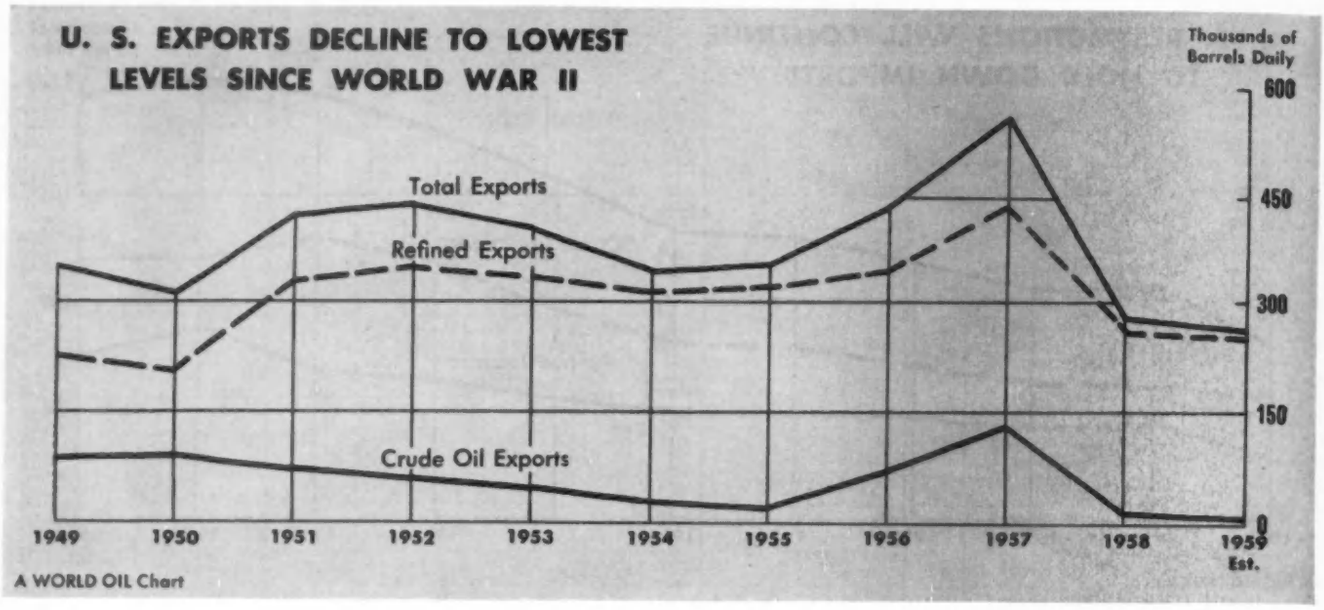
Excess of U. S. Oil Imports Over Exports, by Years

(Source: Bureau of Mines.)

(Thousands of Barrels Per Day)

Year	IMPORTS			EXPORTS			NET IMPORTS		
	Crude Oil	Products	Total	Crude Oil	Products	Total	Crude Oil	Products	Total
1946..	236	141	**377**	116	303	**419**	120	162*	**42***
1947..	267	169	**437**	127	325	**451**	140	155*	**14***
1948..	353	161	**514**	108	259	**367**	245	98*	**147**
1949..	421	224	**645**	91	236	**327**	330	12*	**318**
1950..	487	363	**850**	95	210	**305**	392	153	**545**
1951..	491	354	**844**	78	344	**422**	413	10	**422**
1952..	573	379	**952**	73	359	**432**	500	20	**520**
1953..	648	386	**1,034**	55	347	**402**	593	39	**632**
1954..	656	396	**1,052**	37	319	**356**	619	77	**696**
1955..	782	466	**1,248**	32	336	**368**	750	130	**880**
1956..	934	502	**1,436**	78	352	**430**	856	150	**1,006**
1957..	1,023	552	**1,574**	138	430	**568**	885	122	**1,006**
1958..	950	701	**1,651**	12	266	**278**	938	435	**1,373**
1959†.	950	608	**1,558**	10	258	**268**	940	350	**1,290**

* Net Exports. † Estimate.



to believe that it may evolve as a mandatory system in the future.

The big test. At the time the program was beginning, economic activity in the United States was slackening, with an attendant decline in demand for oil. Therefore, there is some question whether imports might have declined somewhat even in the absence of voluntary controls.

With economic activity and petroleum demand now on the upswing, there will be a real test of the effectiveness of import restrictions. The crude market tends to be more and more a buyer's market on a worldwide basis, and economic pressures will be difficult to withstand.

A proposed new imports plan released on September 10, 1958, by Imports Administrator Matthew B. Carson aroused so many objections the decision on a new formula was postponed until the end of February. Under the proposed plan, the over-all level of allowable crude imports would be computed on the basis of domestic crude production now used. The proposed over-all level would be 10.1 percent of annual total demand, as estimated by the Bureau of Mines. Allocations would be based on refinery runs during a base period.

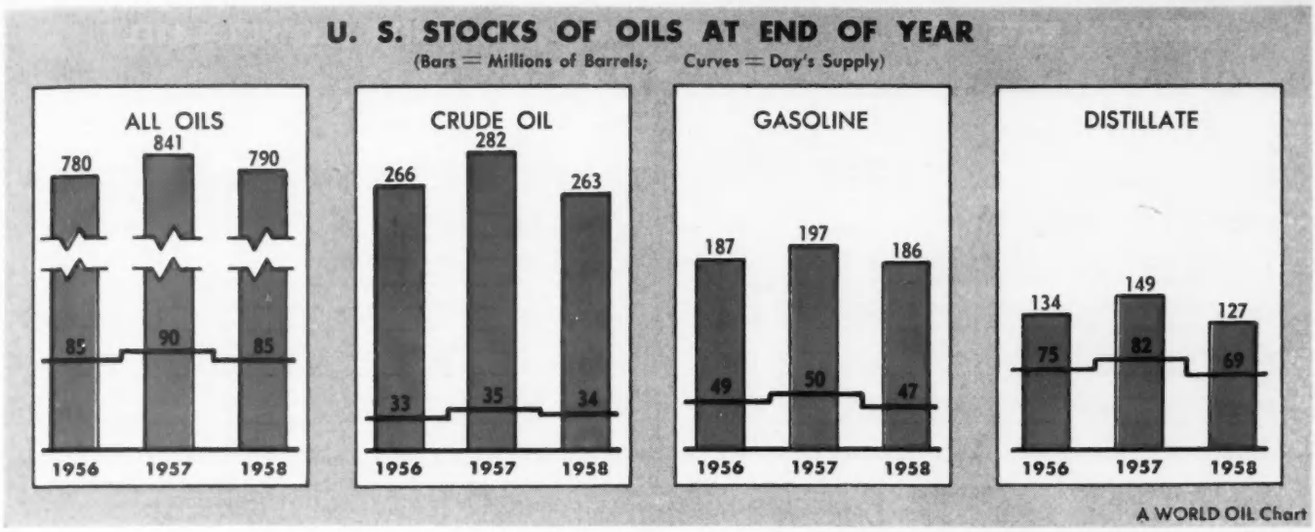
Among the most strongly voiced criticisms of the proposed plan are that it makes no allowance for investment in crude sources outside the United States, and there was no consideration of the fact that a refiner has or can use imported oil. Any new imports plan may be expected to take such factors into account. It may also allow U.S. companies that find new crude sources overseas to be issued import quotas.

U. S. Exports and Imports of Crude Oil and Refined Products, by Years

(Source: Bureau of Mines.)
THOUSANDS OF BARRELS

	EXPORTS					
	Crude		Refined		All Oils	
YEAR	Total	Daily	Total	Daily	Total	Daily
1918	5,884	16	62,234	170	68,118	187
1919	6,348	17	57,545	158	63,893	175
1920	9,295	25	70,323	192	79,618	217
1921	9,527	26	62,254	171	71,881	197
1922	10,805	30	63,745	175	74,550	204
1923	17,534	48	84,800	232	102,334	280
1924	18,239	50	99,089	271	117,328	321
1925	13,337	36	100,684	276	114,021	312
1926	15,407	42	116,999	321	132,406	363
1927	15,844	43	126,419	346	142,263	390
1928	18,966	52	135,991	372	154,957	423
1929	26,401	72	136,719	375	163,120	447
1930	23,705	65	132,790	364	156,495	429
1931	25,535	70	98,819	271	124,354	341
1932	27,393	75	75,882	207	103,275	282
1933	36,584	100	70,143	192	106,727	292
1934	41,127	113	73,380	201	114,507	314
1935	51,430	141	77,557	212	128,987	353
1936	50,313	137	81,681	223	131,994	361
1937	67,234	184	105,600	289	172,834	473
1938	77,254	212	116,474	319	193,728	531
1939	72,076	197	116,883	320	188,959	518
1940	51,496	141	78,970	216	130,466	356
1941	33,238	91	75,592	207	108,830	298
1942	33,834	93	83,073	228	116,907	320
1943	41,342	113	108,615	298	149,957	411
1944	34,238	93	173,378	474	207,616	567
1945	32,998	90	149,985	411	182,983	501
1946	42,436	116	110,687	303	153,123	419
1947	46,355	127	118,122	324	164,477	451
1948	39,736	108	94,938	259	134,674	367
1949	33,069	91	86,307	236	119,376	327
1950	34,823	95	76,483	210	111,306	305
1951	28,604	78	125,448	344	154,052	422
1952	26,696	73	131,492	359	158,188	432
1953	19,931	55	126,660	347	146,591	402
1954	13,599	37	116,134	318	129,733	355
1955	11,571	32	122,617	336	134,188	368
1956	28,624	78	128,762	352	157,386	430
1957	50,243	138	156,944	430	207,187	568
1958	4,380	12	97,090	266	101,470	278
1959 Est.	3,650	10	94,170	258	97,820	268

	IMPORTS					
	Crude		Refined		All Oils	
YEAR	Total	Daily	Total	Daily	Total	Daily
1918	37,736	103	1,227	3	38,963	106
1919	52,822	145	1,376	4	54,198	148
1920	106,175	290	2,647	7	108,822	297
1921	125,364	343	3,428	9	128,792	353
1922	130,255	357	5,719	16	135,974	373
1923	82,015	225	17,638	48	99,653	273
1924	77,775	212	16,806	46	94,581	258
1925	61,824	169	16,376	45	78,200	214
1926	60,382	165	20,938	57	81,320	223
1927	58,383	160	13,353	37	71,736	197
1928	79,767	218	11,790	32	91,557	250
1929	78,933	216	29,777	82	108,710	298
1930	62,129	170	43,489	119	105,618	289
1931	47,250	129	38,837	106	86,087	236
1932	44,682	122	29,812	81	74,494	203
1933	31,893	87	13,501	37	45,394	124
1934	35,558	97	14,936	41	50,494	138
1935	32,239	88	20,396	56	52,635	144
1936	32,327	88	24,777	68	57,104	156
1937	27,484	75	29,673	81	57,157	157
1938	26,412	72	27,896	76	54,308	149
1939	33,095	91	25,965	71	59,060	162
1940	42,662	117	41,089	112	83,751	229
1941	50,606	139	46,536	127	97,142	266
1942	12,297	34	23,669	65	35,966	99
1943	13,833	38	49,579	136	63,412	174
1944	44,805	122	47,506	130	92,311	252
1945	74,337	204	39,282	108	113,619	311
1946	86,066	236	51,610	141	137,676	377
1947	97,532	267	61,857	169	159,389	437
1948	129,093	353	59,051	161	188,144	514
1949	153,686	421	81,873	224	235,559	645
1950	177,714	487	132,547	363	310,261	850
1951	179,073	491	129,121	354	308,194	844
1952	209,591	573	138,916	379	348,507	952
1953	236,455	648	141,044	386	377,499	1,034
1954	239,479	656	144,476	396	383,955	1,052
1955	285,421	782	170,143	466	455,564	1,248
1956	341,833	934	183,758	502	525,591	1,436
1957	373,255	1,023	201,334	552	574,589	1,574
1958	346,750	950	255,865	701	602,615	1,651
1959 Est.	346,750	950	221,920	608	568,670	1,558



Oil stocks drop 51.3 million barrels

With U.S. stocks of all oils at 790 million barrels on January 1, the oil industry was able to begin 1959 operations in a much better inventory position than at any time during 1958.

One of the major factors in the industry's improved economic outlook was the removal of 51.3 million barrels of crude and products from storage during the previous 12 months—one of the largest reductions in history. The 6.1 percent cutback in crude and products stocks began immediately after inventories reached an all-time high of 841.3 million barrels at the start of 1958.

In its 1959 oil industry forecast, the U.S. Bureau of Mines provides for an increase of 9.1 million barrels of products by year's end, with crude stocks remaining the same. Total stocks forecast for the end of 1959: 799.1 million barrels.

Stocks of crude, gasoline and distillates were all reduced during 1958 to correct the unhealthy inventory postion that arose from the overproduction of crude and products which followed the opening of the Suez Canal and the slowdown in consumption that resulted from the business recession.

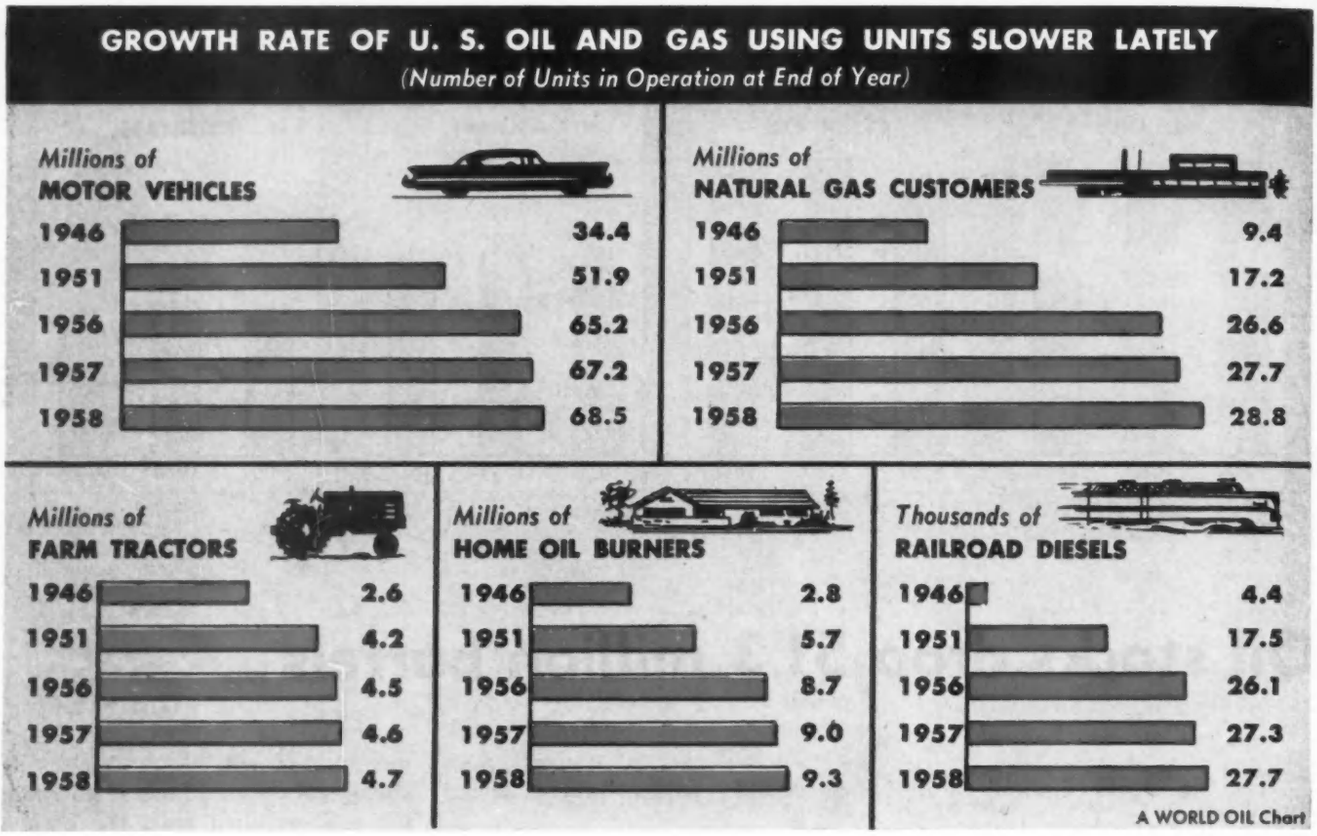
Crude. At the beginning of 1957, crude stocks totaled 266 million barrels. A year later, the inventories had increased to 281.8 million, 15.8 million barrels or 5.9 percent higher than at the start of 1957. During 1958, crude stocks were reduced 18.8 million barrels to a 263 million barrels total at the start of 1959—a reduction of 6.7 percent.

U. S. Stocks of All Oils, Crude Oil, Gasoline and Distillate

(Source: Bureau of Mines, except Dec., 1958, estimated . . . Thousands of Barrels)

END OF YEAR	ALL OILS		CRUDE OIL		GASOLINE		‡DISTILLATE	
	Barrels	Days' Supply	Barrels	Days' Supply	Barrels	Days' Supply	Barrels	Days' Supply
			Refinable		†Motor Fuel			
1918	193,411	165	144,336	125	7,080	28	.....	..
1919	200,383	164	149,356	127	10,638	40	.....	..
1920	209,845	156	149,448	103	11,009	32	.....	..
1921	294,428	203	217,324	150	13,954	39	.....	..
1922	385,349	232	295,708	181	21,043	50	.....	..
1923	492,088	235	340,637	169	25,593	48	.....	..
1924	520,287	236	360,475	171	30,823	50	.....	..
1925	552,464	239	345,863	150	39,273	54	.....	..
1926	527,084	210	315,029	133	39,521	46	.....	..
1927	597,176	231	379,660	155	34,115	36	.....	..
1928	621,010	224	392,629	148	33,742	31	.....	..
1929	689,166	228	428,445	149	42,498	35	.....	..
1930	665,497	224	411,882	153	54,192	43	.....	..
1931	621,673	221	370,194	144	56,171	45	.....	..
1932	590,106	230	339,875	145	53,805	48	.....	..
1933	602,198	226	354,223	140	55,933	50	17,025	..
1934	564,350	199	337,254	128	56,959	48	21,957	..
1935	541,700	178	314,855	109	60,391	47	19,930	71
1936	519,229	155	288,579	91	66,969	48	22,813	68
1937	564,728	154	305,833	87	81,748	54	22,566	56
1938	567,703	156	274,165	79	76,510	49	*36,224	*90
1939	525,838	135	238,910	66	87,286	53	33,718	74
1940	563,277	141	264,079	70	83,647	50	42,940	87
1941	552,328	127	247,499	61	90,596	48	49,926	93
1942	497,940	116	234,889	61	75,404	44	44,940	75
1943	485,698	106	243,506	59	69,505	41	41,728	65
1944	477,089	95	220,862	46	78,073	39	38,333	55
1945	463,579	87	218,763	45	93,682	44	35,778	50
1946	507,094	95	224,473	45	89,515	42	59,620	80
1947	502,053	85	224,929	42	87,407	38	51,081	57
1948	607,856	99	246,572	43	101,060	41	76,001	77
			All Crude					
*1948	605,743	99	256,627	44	101,060	41	*71,429	*72
1949	603,119	98	253,356	46	110,417	42	75,207	80
1950	582,710	86	248,463	42	116,024	42	71,948	64
1951	634,109	85	255,783	39	*135,306 ‡Gasoline	44	*86,619	67
1952	673,754	87	271,928	40	134,737	42	98,688	71
1953	725,507	91	274,445	39	157,872	46	111,741	78
1954	714,933	88	258,385	37	155,400	46	108,144	75
1955	714,859	81	265,610	35	165,433	46	111,333	70
1956	780,391	85	266,014	34	187,271	49	133,981	75
1957	841,317	90	281,813	35	196,776	50	149,449	82
1958	790,018	85	263,039	34	186,200	47	126,700	69
1959 Est.	799,143	83	263,039	32	.....	..	.....	..

* Revised; new basis. † Finished and natural gasoline. ‡ Finished and unfinished gasoline. ⧗ Distillate and residual fuel oils included together prior to 1935.



Oil and gas using units reach new record level

AT THE BEGINNING of 1959, as in 1958, another new record number of oil and gas consuming units was in operation. With the number of homes, motor vehicles, farm tractors, and railroad locomotives using oil and gas at an all-time high at the start of this year, the prospects were that future growth would be smaller proportionately than in previous years.

Factors involved in exerting this leveling-off influence include a combination of economics and market saturation, including:

- A decrease in the rate of annual growth in the sales of new automobiles.
- The high level of mechanization which a large percentage of farms have undergone.
- The extensive use of diesel power which the nation's railroads already have recorded.

One additional factor involved in determining the number of oil and gas consuming units which will be added during the current year is that of new home construction. It is this category which improves the outlook considerably, since an anticipated upturn in new-home construction rate will increase the needs for additional oil and gas using units.

As in 1958, requirements for railroad diesels and mechanized farm equipment are expected to vary for the most part, only with the needs for replacements since the market has been largely saturated.

Motor vehicles. The number of motor vehicles in the U.S. rose to still another record level—68.5 million—at the close of 1958. This was tantamount to an increase of 1.3 million from the 1957 end-of-year level of 67.2 million.

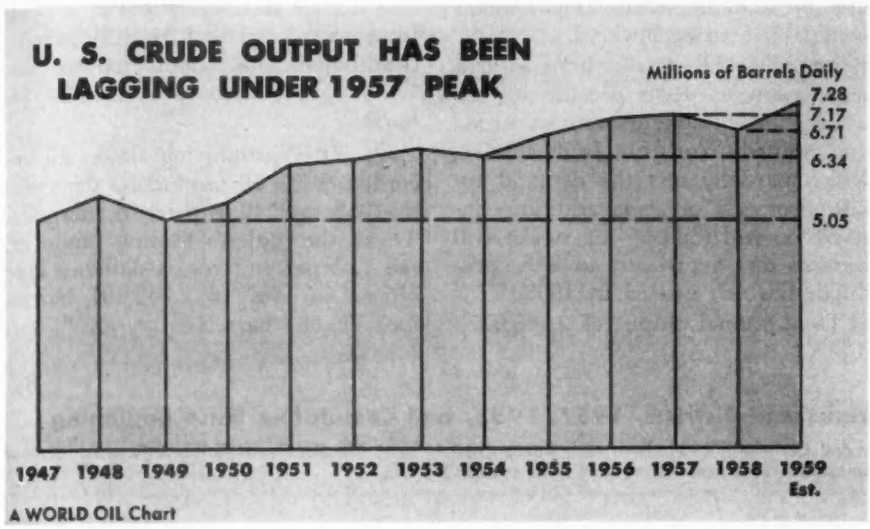
Natural gas customers. Although the number of natural gas customers has increased sharply during recent years, the rate of increase has been subjected to a significant downtrend. However, last year a leveling-off was experienced.

While the number of users has almost tripled during the past decade, the increase in numbers at the end of 1958 amounted to 1.1 million, as compared with a paralleling increase in 1957. In 1956, the gain over 1955 amounted to 2.8 million.

Farm tractors. This group of oil and gas using units increased to 4.7 million by the close of 1958 from the 1957 level of 4.6 million.

Home oil burners. This type of oil using unit recorded a new peak of 9.3 million at year's end, reflecting an increase of about 300,000 reported at the close of the previous year. A similar gain was recorded in 1957 as compared with 1956. However, this increase represents the smallest rate of growth in years.

Railroad diesels. This type of locomotive also set another new record in 1958 in reaching a level of 27.7 million, as compared with 27.3 million at the end of 1957.


U. S. CRUDE OUTPUT HAS BEEN LAGGING UNDER 1957 PEAK
Millions of Barrels Daily
7.28
7.17
6.71
6.34
5.05
1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 Est.
A WORLD OIL Chart

U.S. crude production increase is anticipated during 1959

WITH THE U.S. oil industry outlook considerably brighter than a year ago, it is estimated that the market demand for domestic crude oil production will average about 7,280,000 barrels daily in 1959. This is the forecast of the U.S. Bureau of Mines. Such an output would be 573,000 barrels daily, or 8.5 percent, more than the U.S. production of 6,707,000 barrels a day in 1958. The 1958 output was 463,000 barrels daily, or 6.5 percent, less than the peak of 7,170,000 barrels per day in 1957.

Thus, a general improvement throughout the industry is anticipated, as contrasted with the many economic difficulties which hampered the industry since the spring of 1957 and which were corrected during 1958. Sizable reductions in crude oil production and refinery product output, in addition to government limitation of crude oil imports, resulted in an unusually large liquidation of U.S. oil inventories in 1958. A daily average of 141,000 barrels, including 51,000 barrels of crude and 90,000 barrels a day of refined products, was taken from petroleum stocks last year. Heavy stock drafts eliminated excessive inventories. Consequently, producers and refiners no longer must hold supply volumes below current requirements.

Factors assisting in the improved outlook include an improvement in general business activity, which has increased consuming rates sharply in recent months, and colder than normal weather in the north and northeast areas.

Demand for all oils, it is expected, will rise by 4 percent in 1959. Part of this gain will be met by increased production of natural gas liquids, the output of which will increase by 4.1 percent.

A second important source of supply consists of imports. The Bureau of Mines has assumed that crude oil imports will remain at about the same volume in 1959 as in 1958, and in its forecast has made allowance for some decrease in refined products imports. However, the latter is uncertain.

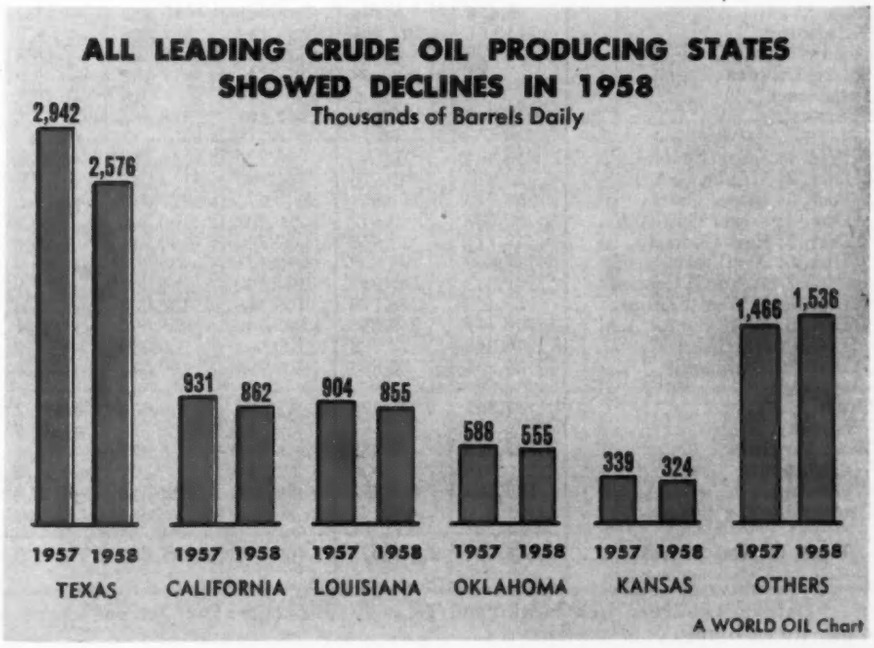
Assuming the Bureau of Mines forecast on imports will be fulfilled, the

U. S. Crude Oil Production

Source: U. S. Bureau of Mines, except Nov. and Dec., 1958, from American Petroleum Institute.

(THOUSANDS OF BARRELS)

Year	Total	Daily	Year	Total	Daily
.....	.....	....	1939..	1,264,962	3,466
.....	.....	....	1940..	1,353,214	3,707
1918...	355,928	975			
1919...	378,367	1,037	1941..	1,402,228	3,842
1920...	442,929	1,213	1942..	1,386,645	3,799
			1943..	1,505,613	4,125
1921...	472,183	1,294	1944..	1,677,904	4,584
1922...	557,531	1,528	1945..	1,713,655	4,695
1923...	732,407	2,007			
1924...	713,940	1,956	1946..	1,733,939	4,750
1925...	763,743	2,092	1947..	1,856,987	5,088
			1948..	2,020,185	5,520
1926...	770,874	2,112	1949..	1,841,940	5,046
1927...	901,129	2,469	1950..	1,973,574	5,407
1928...	901,474	2,469			
1929...	1,007,323	2,760	1951..	2,247,711	6,158
1930...	898,011	2,460	1952..	2,289,836	6,256
			1953..	2,357,082	6,458
1931...	851,081	2,332	1954..	2,314,988	6,342
1932...	785,159	2,151	1955..	2,484,428	6,807
1933...	905,656	2,481			
1934...	908,065	2,488	1956..	2,617,283	7,151
1935...	996,596	2,730	1957..	2,616,901	7,170
			1958..	2,448,077	6,707
1936...	1,099,687	3,013			
1937...	1,279,160	3,505	1959		
1938...	1,214,355	3,327	Est...	2,657,200	7,280



requirements for U.S. crude production in 1959 will amount to 7,280,000 barrels per day, an increase of 573,000 barrels daily or 8.3 percent over the actual production in 1958 of 6,707,000 barrels per day.

Currently, the imports situation is undecided. That fact throws some doubt on the exact amount of imports during the current year. If they continue relatively high, as they currently are, it could mean that the above figures on domestic crude requirements would have to be lowered.

Actually, U.S. production was artificially low in 1958 because of unusually heavy withdrawals of crude and refined products from storage, which partially met the demand for oils. Prospects of some addition—instead of reduction—of stocks will remove this depressant to U.S. production which existed in 1958.

Total annual output of 2,448,077,000 barrels in 1958 showed a drop from 1957 of 168,824,000 barrels. Cumulative U.S. production to Jan. 1, 1959, amounted to 60,295,394,000 barrels.

Of 30 oil producing states, 18 recorded crude oil production decreases in 1958 and 12 reported increases. Texas, the nation's leading producer, fell 12.5 percent from a daily average output in 1957 of 2,942,101 barrels to 2,575,866 barrels last year.

U. S. Crude Oil Production, by States and Districts, 1957, 1958, and Cumulative Since Beginning

(Sources: U. S. Bureau of Mines, except November and December, 1958, from API; Texas districts from API and Texas Railroad Commission; and Louisiana district cumulatives from other sources.)

STATE or DISTRICT	Annual Production (Thousand Bbls.)		Daily Average Production (Actual Bbls.)			Year's Production As % of U.S.		Cumulative Prod. to Jan. 1, 1959 (Thousand Bbls.)	
	1957	1958	1957	1958	% Diff. '57–'58	1957	1958	Total	As of % U.S.
Alabama	**5,406**	**5,932**	**14,811**	**16,252**	**+ 9.7**	**0.20**	**0.24**	**24,058**	**0.03**
Arkansas	**31,047**	**28,905**	**85,060**	**79,192**	**— 6.9**	**1.19**	**1.18**	**1,031,827**	**1.72**
California	**339,646**	**314,604**	**930,537**	**861,929**	**— 7.4**	**12.98**	**12.85**	**11,414,375**	**18.93**
Colorado	**54,982**	**48,412**	**150,636**	**132,636**	**— 12.0**	**2.10**	**1.98**	**502,385**	**0.83**
Florida	**461**	**448**	**1,263**	**1,227**	**— 2.9**	**0.02**	**0.02**	**5,741**	**0.01**
Illinois	**77,083**	**82,092**	**211,186**	**224,910**	**+ 6.5**	**2.94**	**3.36**	**2,075,416**	**3.44**
Indiana	**12,662**	**11,757**	**34,690**	**32,211**	**— 7.2**	**0.49**	**0.48**	**294,807**	**0.49**
Kansas	**123,614**	**118,129**	**338,668**	**323,641**	**— 4.4**	**4.72**	**4.82**	**3,050,351**	**5.06**
Kentucky	**17,029**	**17,262**	**46,655**	**47,293**	**+ 1.4**	**0.65**	**0.71**	**368,532**	**0.61**
***Louisiana**	**329,896**	**312,086**	**903,825**	**855,030**	**— 5.4**	**12.61**	**12.75**	**4,752,829**	**7.88**
North Louisiana	46,127	41,721	126,375	114,304	— 9.6	1.76	1.70	1,138,677	1.89
South Louisiana	283,769	270,365	777,449	740,726	— 4.7	10.85	11.05	3,281,936	5.44
Michigan	**10,169**	**9,237**	**27,860**	**25,307**	**— 9.2**	**0.38**	**0.37**	**415,150**	**0.69**
Mississippi	**38,922**	**38,618**	**106,636**	**105,803**	**— 0.8**	**1.49**	**1.58**	**583,373**	**0.97**
Missouri	**65**	**62**	**178**	**170**	**— 4.5**	**0.00**	**0.00**	**1,022**	**0.00**
Montana	**27,172**	**28,255**	**74,444**	**77,411**	**+ 4.0**	**1.04**	**1.15**	**305,771**	**0.51**
Nebraska	**19,586**	**20,524**	**53,660**	**56,230**	**+ 4.8**	**0.75**	**0.84**	**94,246**	**0.15**
Nevada	**44**	**38**	**121**	**104**	**— 14.0**	**0.00**	**0.00**	**243**	**0.01**
***New Mexico**	**94,759**	**98,467**	**259,614**	**269,773**	**+ 3.9**	**3.62**	**4.02**	**1,303,133**	**2.16**
Southeast New Mexico	92,240	90,286	252,712	247,359	— 2.1	3.52	3.69	1,276,310	2.12
Northwest New Mexico	2,519	8,181	6,902	22,414	+224.8	0.10	0.33	27,156	0.04
New York	**2,677**	**1,797**	**7,334**	**4,923**	**— 32.9**	**0.11**	**0.08**	**202,690**	**0.33**
North Dakota	**13,259**	**13,736**	**36,326**	**37,633**	**+ 3.6**	**0.50**	**0.56**	**64,415**	**0.11**
Ohio	**5,478**	**6,202**	**15,008**	**16,992**	**+ 13.2**	**0.21**	**0.25**	**655,797**	**1.09**
Oklahoma	**214,661**	**202,505**	**588,112**	**554,808**	**— 5.7**	**8.20**	**8.27**	**7,863,034**	**13.04**
Pennsylvania	**8,179**	**6,680**	**22,408**	**18,301**	**— 18.3**	**0.32**	**0.28**	**1,199,117**	**1.99**
South Dakota	**54**	**59**	**148**	**162**	**+ 9.5**	**0.00**	**0.00**	**212**	**0.00**
Tennessee	**7**	**6**	**19**	**16**	**— 15.8**	**0.00**	**0.00**	**597**	**0.00**
***Texas**	**1,073,867**	**940,191**	**2,942,101**	**2,575,866**	**— 12.5**	**41.04**	**38.40**	**21,923,870**	**36.36**
Dist. 1: South Central	19,464	16,883	53,326	46,255	— 13.3	0.74	0.68	431,565	0.72
Dist. 2: Middle Gulf	52,976	42,426	145,140	116,236	— 19.9	2.02	1.73	987,568	1.64
Dist. 3: Upper Gulf	160,775	137,854	440,475	377,682	— 14.3	6.14	5.63	3,930,998	6.52
Dist. 4: Lower Gulf-S.W.	82,567	69,542	226,209	190,526	— 15.8	3.15	2.84	1,627,025	2.70
Dist. 5: East Central	13,775	10,966	37,739	30,044	— 20.4	0.52	0.44	640,481	1.06
Dist. 6: Northeast	116,849	94,668	320,131	259,364	— 19.0	4.46	3.86	3,590,470	5.95
Dist. 7-B: North Central	57,342	49,987	157,100	136,951	— 12.8	2.19	2.04	850,990	1.41
Dist. 7-C: West Central	58,469	48,776	160,188	133,633	— 16.6	2.23	1.99	713,571	1.18
Dist. 8: West	400,461	349,680	1,097,143	958,027	— 12.7	15.29	14.28	5,188,492	8.60
Dist. 9: North	76,286	73,288	209,001	200,789	— 3.9	2.91	2.99	1,663,310	2.76
Dist. 10: Panhandle	38,251	36,688	104,796	100,515	— 4.1	1.46	1.49	930,850	1.54
Utah	**4,367**	**24,420**	**11,964**	**66,904**	**+459.2**	**0.16**	**1.00**	**42,110**	**0.07**
Virginia	**5**	**7**	**14**	**19**	**+ 35.7**	**0.00**	**0.00**	**248**	**0.00**
West Virginia	**2,215**	**2,189**	**6,068**	**5,997**	**— 1.2**	**0.09**	**0.09**	**461,162**	**0.76**
Washington	**5**	**4**	**14**	**11**	**— 21.4**	**0.00**	**0.00**	**9**	**0.00**
Wyoming	**109,584**	**115,453**	**300,230**	**316,310**	**+ 5.4**	**4.19**	**4.72**	**1,658,302**	**2.75**
Unclassified	.....	.....	.....	.....	.....	.....	.....	**572**	**0.01**
Total United States	**2,616,901**	**2,448,077**	**7,169,592**	**6,707,060**	**— 6.5**	**100.0**	**100.0**	**60,295,394**	**100.0**

* Data on Louisiana, New Mexico and Texas by districts are from various sources and do not necessarily agree with state totals, which are on Bureau of Mines Basis.

United States Crude Oil Production, By States, By Years (Part 1)

Data in thousands of barrels; from *Mineral Resources and Minerals Yearbook*, except where otherwise indicated in footnotes.

Year	Alabama	Arkansas	California	Colorado	Florida	Illinois	Indiana	Kansas	Kentucky	Louisiana	Michigan	Mississippi	Missouri	Montana	Nebraska	Nevada	New Mexico
1875	.....	.....	.....	.....	.....	.....	.....	.....	E	.....	.....	.....	.....	.....	.....	.....	.....
1876	.....	.....	12	.....	.....	.....	.....	.....	G E	.....	.....	.....	.....	.....	.....	.....	.....
1877	.....	.....	13	.....	.....	.....	.....	.....	G E	.....	.....	.....	.....	.....	.....	.....	.....
1878	.....	.....	15	.....	.....	.....	.....	.....	G E	.....	.....	.....	.....	.....	.....	.....	.....
1879	.....	.....	20	.....	.....	.....	.....	.....	G E	.....	.....	.....	.....	.....	.....	.....	.....
1880	.....	.....	40	.....	.....	.....	.....	.....	G E	.....	.....	.....	.....	.....	.....	.....	.....
1881	.....	.....	100	.....	.....	.....	.....	.....	G E	.....	.....	.....	.....	.....	.....	.....	.....
1882	.....	.....	129	.....	.....	.....	.....	.....	G E	.....	.....	.....	.....	.....	.....	.....	.....
1883	.....	.....	143	.....	.....	.....	.....	.....	G5	.....	.....	.....	.....	.....	.....	.....	.....
1884	.....	.....	262	.....	.....	.....	.....	.....	G4	.....	.....	.....	.....	.....	.....	.....	.....
1885	.....	.....	325	.....	.....	.....	.....	.....	G5	.....	.....	.....	.....	.....	.....	.....	.....
1886	.....	.....	377	.....	.....	.....	.....	.....	G5	.....	.....	.....	.....	.....	.....	.....	.....
1887	.....	.....	678	76	.....	.....	.....	.....	G5	.....	.....	.....	.....	.....	.....	.....	.....
1888	.....	.....	690	298	.....	.....	.....	.....	G5	.....	.....	.....	.....	.....	.....	.....	.....
1889	.....	.....	303	317	.....	1	33	1	G5	.....	.....	.....	H	.....	.....	.....	.....
1890	.....	.....	307	369	.....	1	64	1	G6	.....	.....	.....	H	.....	.....	.....	.....
1891	.....	.....	324	666	.....	1	137	1	G9	.....	.....	.....	H	.....	.....	.....	.....
1892	.....	.....	385	824	.....	1	698	5	G7	.....	.....	.....	H	.....	.....	.....	.....
1893	.....	.....	470	594	.....	1	2,335	18	G3	.....	.....	.....	H	.....	.....	.....	.....
1894	.....	.....	706	516	.....	H	3,689	40	G2	.....	.....	.....	H	.....	.....	.....	.....
1895	.....	.....	1,209	438	.....	H	4,386	44	G2	.....	.....	.....	H	.....	.....	.....	.....
1896	.....	.....	1,253	361	.....	H	4,681	114	G2	.....	.....	.....	H	.....	.....	.....	.....
1897	.....	.....	1,903	385	.....	1	4,122	81	G H	.....	.....	.....	H	.....	.....	.....	.....
1898	.....	.....	2,257	444	.....	H	3,731	72	G6	.....	.....	.....	H	.....	.....	.....	.....
1899	.....	.....	2,642	390	.....	H	3,848	70	G18	.....	.....	.....	H	.....	.....	.....	.....
1900	.....	.....	4,325	317	.....	H	4,874	75	G62	.....	J	.....	J2	.....	.....	.....	.....
1901	.....	.....	8,787	461	.....	H	5,757	179	G137	.....	J	.....	J2	.....	.....	.....	.....
1902	.....	.....	13,984	397	.....	H	7,481	332	G185	549	J	.....	J1	.....	.....	.....	.....
1903	.....	.....	24,382	484	.....	.....	9,186	932	G554	918	J	.....	J3	.....	.....	.....	.....
1904	.....	.....	29,649	501	.....	.....	11,339	4,251	G998	2,959	J	.....	J3	.....	.....	.....	.....
1905	.....	.....	33,428	376	.....	181	10,964	I3,750	G1,217	8,910	J	.....	J3	.....	.....	.....	.....
1906	.....	.....	33,099	328	.....	4,397	7,674	I3,627	G1,214	9,077	J	.....	J3	.....	.....	.....	.....
1907	.....	.....	39,748	332	.....	24,282	5,128	2,410	G821	5,000	J	.....	J4	.....	.....	.....	.....
1908	.....	.....	44,855	380	.....	33,686	3,283	1,801	728	5,789	J	.....	J15	.....	.....	.....	.....
1909	.....	.....	55,472	311	.....	30,898	2,296	1,264	639	3,060	J	.....	J6	.....	.....	.....	.....
1910	.....	.....	73,011	240	.....	33,143	2,160	1,128	469	6,841	J	.....	J4	.....	.....	.....	.....
1911	.....	.....	81,134	227	.....	31,317	1,695	1,279	472	10,721	J	.....	J8	.....	.....	.....	.....
1912	.....	.....	87,269	206	.....	28,602	970	1,593	484	9,263	K	.....	.....	.....	.....	.....	.....
1913	.....	.....	97,788	189	.....	23,894	956	2,375	525	12,499	K	.....	K	.....	.....	.....	K
1914	.....	.....	99,775	223	.....	21,920	1,336	3,104	503	14,309	K	.....	K	.....	.....	.....	.....
1915	.....	.....	86,592	208	.....	19,042	876	2,823	437	18,192	K	.....	K	.....	.....	.....	.....
1916	.....	.....	90,952	197	.....	17,714	769	8,738	L1,202	15,248	K	.....	K	45	.....	.....	.....
1917	.....	.....	93,878	121	.....	15,777	760	36,536	L3,088	11,392	K	.....	.....	100	.....	.....	.....
1918	.....	.....	97,532	143	.....	13,366	878	45,451	L4,368	16,043	K	.....	.....	69	.....	.....	.....
1919	.....	.....	101,183	121	.....	11,960	972	33,048	9,278	17,188	K	.....	K	90	.....	.....	K
1920	.....	K	103,377	111	.....	10,774	945	39,005	8,738	35,714	.....	.....	K	340	.....	.....	K
1921	.....	10,473	112,600	108	.....	10,043	1,158	36,456	9,013	27,103	.....	.....	K	1,509	.....	.....	K
1922	.....	12,712	138,468	97	.....	9,383	1,087	31,766	8,973	35,376	.....	.....	K	2,449	.....	.....	K
1923	.....	36,610	262,876	86	.....	8,707	1,043	28,250	8,069	24,919	.....	.....	K	2,782	.....	.....	K
1924	.....	46,028	228,933	445	.....	8,081	935	28,836	7,407	21,124	.....	.....	.....	2,815	.....	.....	98
1925	.....	77,398	232,492	1,226	.....	7,863	829	38,357	6,759	20,272	4	.....	.....	4,091	.....	.....	1,060
1926	.....	58,332	224,673	2,768	.....	7,760	808	41,498	6,274	23,201	94	.....	.....	7,727	.....	.....	1,666
1917	.....	40,005	231,196	2,831	.....	6,994	852	41,069	6,719	22,818	439	.....	.....	5,058	.....	.....	1,226
1928	.....	32,096	231,811	2,774	.....	6,462	1,052	38,596	7,359	21,847	594	.....	.....	4,015	.....	.....	943
1929	.....	24,917	292,534	2,358	.....	6,319	981	42,813	7,775	20,554	4,528	.....	.....	3,980	.....	.....	1,830
1930	.....	19,702	227,329	1,656	.....	5,736	994	41,638	7,389	23,272	3,911	.....	.....	3,349	.....	.....	10,189
1931	.....	14,791	188,830	1,545	.....	5,039	840	37,018	6,456	21,804	3,789	.....	.....	2,830	.....	.....	15,227
1932	.....	12,051	178,128	1,136	.....	4,673	806	34,848	6,287	21,807	6,910	.....	K	2,457	.....	.....	12,455
1933	.....	11,686	172,010	919	.....	4,244	737	41,976	4,608	25,168	7,942	K	K	2,273	.....	.....	14,116
1934	.....	11,182	174,305	1,139	.....	4,479	838	46,482	4,860	32,869	10,603	K	K	3,603	.....	.....	16,864
1935	.....	11,008	207,832	1,560	.....	4,322	777	54,843	5,258	50,330	15,776	K	K	4,603	.....	.....	20,483
1936	.....	10,469	214,773	1,650	.....	4,475	822	58,317	5,633	80,491	11,928	.....	K	5,868	.....	.....	27,223
1937	.....	11,764	238,521	1,605	.....	7,499	844	70,761	5,484	90,924	16,628	.....	K	5,805	.....	.....	38,854
1938	.....	18,180	249,749	1,412	.....	24,075	995	60,064	5,821	95,208	18,745	.....	K	4,946	.....	.....	35,759
1939	.....	21,238	224,354	1,404	.....	94,912	1,711	60,703	5,621	93,646	23,462	107	40	5,960	2	.....	37,637
1940	.....	25,775	223,881	1,626	.....	147,647	4,978	66,139	5,188	103,584	19,753	4,400	44	6,728	276	.....	39,129
1941	.....	26,327	230,263	2,150	.....	132,393	7,411	83,242	4,762	115,908	16,359	15,327	47	7,526	1,898	.....	39,569
1942	.....	26,628	248,326	2,199	.....	106,391	6,743	97,636	4,534	115,785	21,754	28,833	36	8,074	1,237	.....	31,544
1943	.....	27,600	284,188	2,320	4	82,260	5,283	106,178	7,883	123,592	20,768	18,807	36	7,916	635	.....	38,896
1944	43	29,418	311,793	3,083	12	77,413	5,118	98,762	9,621	129,645	18,490	16,337	45	8,647	417	.....	39,555
1945	181	28,613	326,482	5,036	30	75,094	4,868	96,415	10,325	131,051	17,267	19,062	45	8,420	305	.....	37,351
1946	380	28,375	314,713	11,856	57	75,297	6,726	97,218	10,578	143,669	17,074	24,298	51	8,825	293	.....	36,814
1947	396	29,948	333,132	15,702	259	66,459	6,095	105,132	9,397	160,128	16,215	34,925	55	8,742	229	.....	40,926
1948	466	31,682	340,074	17,878	290	64,808	6,974	110,908	8,801	181,458	16,871	45,761	44	9,382	215	.....	47,969
1949	462	29,986	332,942	23,587	441	64,501	9,696	101,868	8,803	190,826	16,517	37,966	49	9,118	330	.....	47,645
1950	735	31,108	327,607	23,303	487	62,028	10,699	107,586	10,381	208,965	15,826	38,236	32	8,109	1,547	.....	47,367
1951	1,020	29,798	354,561	27,823	596	60,243	11,100	114,522	11,622	232,281	13,927	37,039	24	8,958	2,558	.....	52,719
1952	1,279	29,440	359,450	30,381	591	60,089	12,037	114,807	11,918	243,929	13,251	36,310	21	9,606	2,660	.....	58,681
1953	1,694	29,681	365,085	36,402	543	59,026	12,823	114,566	11,518	256,632	12,285	35,620	39	11,920	6,344	.....	70,441
1954	1,584	29,130	355,865	46,206	548	66,798	11,204	119,317	13,791	246,558	12,028	34,240	96	14,195	7,783	33	74,820
1955	1,411	28,369	354,812	52,653	495	81,423	10,988	121,669	15,518	271,010	11,266	37,741	72	15,654	11,203	64	82,958
1956	3,069	29,355	350,754	58,516	479	82,346	11,513	124,204	17,628	299,421	10,740	40,824	65	21,760	16,204	64	87,893
1957	5,406	31,047	339,646	54,982	461	77,083	12,662	123,614	17,029	329,896	10,169	38,922	65	27,172	19,586	44	94,759
1958P	5,932	28,905	314,604	48,412	448	82,092	11,757	118,129	17,262	312,086	9,237	38,618	62	28,255	20,524	38	98,467
Total	24,058	1,031,827	11,414,375	502,385	5,741	2,075,416	294,807	3,050,351	368,532	4,752,829	415,150	583,373	1,022	305,771	94,246	243	1,303,133

A Utah prod. est. at 3,650 bbls. in 1939; 3,126 bbls. in 1940; and 189,726 bbls. cum. through 1940.

B *Petroleum in U. S. and Possessions*, by Arnold and Kemnitzer, shows for Alas. following data: 1904-1919, est., 56,000 bbls.; 1920, 11,000 bbls.; 1921, 10,000 bbls.; 1922-1928, est., 73,000 bbls.; total, 1904-1928, 150,000 bbls.

C "Unclassified" includes 1912, Alas. and Mich.; 1913, Alas., Mich., Mo. and N. Mex.; 1914-16, Alas., Mich. and Mo.; 1917-18, Alas. and Mich.; 1919, Alas., Mich., Mo. and N. Mex.; 1920, Alas., Ark., Mo., N. Mex. and Ut.; 1921-23, Alas., Mo. and N. Mex.; 1924-31, Alas. and Ut.; 1932, Alas., Mo. and Ut.; 1933, Alas., Mis., Mo. and Ut.; 1934, Mis., Mo. and Ut.; 1935, Mis., Mo., Ten. and Ut.; 1936-1938, Mo., Ten. and Ut.

D Pa. and N. Y. separated in years 1864-1881, by aid of *Petroleum in U. S. and Possessions*, by Arnold and Kemnitzer.

E *Petroleum in U. S. and Possessions* gives following additional estimates not shown by official *Mineral Resources;* O., 1860-1875, 200,000 bbls.; W. Va., 1860-1875, 2,800,000 bbls.; Ky., 1860-1882, 161,000 bbls.

F N. Y. incl. with Pa.

United States Crude Oil Production, By States, By Years (Part 2)

Data in thousands of barrels; from *Mineral Resources and Minerals Yearbook*, except where otherwise indicated in footnotes.

New York, Ohio, Pennsylvania, West Virginia, and U. S. Total, 1859-1885

Year	New York	Penn-sylvania	U.S.	Value at Wells $1,000	[O] Value per Bbl. $	Year	New York	Penn-sylvania	Total U.S.	Value at Wells $1,000	[O] Value per Bbl. $	Year	New York	Ohio	Penn-sylvania	W. Va.	Total U.S.	Value at Wells $1,000	[O] Value per Bbl. $
1856	.....	.....	.....	.....	.....	1866	[D]144	[D]3,454	3,598	13,455	3.75	1876	[D]359	32	[D]8,610	120	9,133	22,983	2.52
1857	.....	.....	.....	.....	.....	1867	[D]134	[D]3,213	3,347	8,067	2.40	1877	[D]525	30	[D]12,610	172	13,350	31,789	2.38
1858	.....	.....	.....	.....	.....	1868	[D]146	[D]3,500	3,646	13,217	3.62	1878	[D]607	08	[D]14,557	180	15,397	18,045	1.17
1859	.....	2	2	32	20.00	1869	[D]169	[D]4,046	4,215	23,730	5.60	1879	[D]787	29	[D]18,898	180	19,914	17,211	.86
1860	.....	500	500	4,800	9.60	1870	[D]211	[D]5,050	5,261	20,504	3.90	1880	[D]1,041	39	[D]24,987	179	26,286	24,601	.94
1861	.....	2,114	2,114	1,036	.52	1871	[D]208	[D]4,997	5,205	22,591	4.40	1881	[D]1,095	34	[D]26,281	151	27,661	25,448	.92
1862	.....	3,057	3,057	3,210	1.05	1872	[D]252	[D]6,041	6,293	21,440	3.75	1882	6,685	40	23,368	128	30,350	23,631	.78
1863	.....	2,611	2,611	8,226	3.15	1873	[D]396	[D]9,498	9,894	18,100	1.80	1883	4,004	47	19,125	126	23,450	25,790	1.10
1864	[D F H]	[D F]2,116	2,116	20,897	8.15	1874	[D]437	[D]10,490	10,927	12,648	1.15	1884	3,231	90	20,541	90	24,218	20,596	.85
1865	[D]100	[D]2,398	2,498	16,460	6.59	1875	[D]352	[D]8,436	8,788	7,368	.97	1885	2,658	662	18,118	91	21,859	19,198	.88

New York, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Tennessee, Texas, Utah, Virginia, West Virginia, Wyoming, and U. S. Total, 1886 to Now

Year	New York	N. Dakota	Ohio	Oklahoma	Pennsylvania	S. Dakota	Tennessee	Texas	[A] Utah	Va.	Washingt'n	W. Va.	Wyoming	[B] Alaska	[C] Unclassified	Total United States	Value at Wells $1,000	[O] Value per Bbl. $
1886	2,151	.....	1,783	.....	23,647	.....	[G]	.....	.....	.....	.....	102	.....	.....	.....	28,065	19,996	.71
1887	2,075	.....	5,023	.....	20,281	.....	[G]	.....	.....	.....	.....	145	.....	.....	.....	28,283	18,877	.67
1888	1,789	.....	10,011	.....	14,700	.....	[G]	.....	.....	.....	.....	119	.....	.....	.....	27,612	17,948	.65
1889	1,897	.....	12,472	.....	19,591	.....	[G]	[H]	.....	.....	.....	544	.....	.....	.....	35,164	26,963	.77
1890	1,658	.....	16,125	.....	26,800	.....	[G]	.....	.....	.....	.....	493	.....	.....	.....	45,824	35,365	.77
1891	1,585	.....	17,740	[H]	31,424	.....	[G]	[H]	.....	.....	.....	2,406	.....	.....	.....	54,293	30,527	.56
1892	1,273	.....	16,363	[H]	27,149	.....	[G]	[H]	.....	.....	.....	3,810	.....	.....	.....	50,515	25,907	.51
1893	1,032	.....	16,249	[H]	19,283	.....	[G]	[H]	.....	.....	.....	8,446	.....	.....	.....	48,431	28,950	.60
1894	942	.....	16,792	[H]	18,078	.....	[G]	[H]	.....	.....	.....	8,577	2	.....	.....	49,344	35,522	.72
1895	913	.....	19,545	[H]	18,231	.....	[G]	[H]	.....	.....	.....	8,120	4	.....	.....	52,892	57,632	1.09
1896	1,205	.....	23,941	[H]	19,379	.....	[G]	1	.....	.....	.....	10,020	3	.....	.....	60,960	58,519	.96
1897	1,279	.....	21,561	1	17,983	.....	[G]	66	.....	.....	.....	13,090	4	.....	.....	60,476	40,874	.68
1898	1,205	.....	18,739	.....	14,743	.....	[G]	546	.....	.....	.....	13,615	6	.....	.....	55,364	44,193	.80
1899	1,321	.....	21,142	.....	13,054	.....	[G]	669	.....	.....	.....	13,911	6	.....	.....	57,071	64,604	1.13
1900	1,301	.....	22,363	6	13,258	.....	[G]	836	.....	.....	.....	16,196	6	.....	.....	63,621	75,989	1.19
1901	1,207	.....	21,648	10	12,625	.....	[G]	4,394	.....	.....	.....	14,177	5	.....	.....	69,389	66,417	.96
1902	1,120	.....	21,014	37	12,064	.....	[G]	18,084	.....	.....	.....	13,513	6	.....	.....	88,767	71,179	.80
1903	1,163	.....	20,480	139	11,355	.....	[G]	17,956	.....	.....	.....	12,900	9	.....	.....	100,461	94,694	.94
1904	1,113	.....	18,877	1,367	11,126	.....	[G]	22,241	.....	.....	.....	12,645	12	[N]	.....	117,081	101,175	.86
1905	1,118	.....	16,347	[I]8,264	10,437	.....	[G]	28,136	.....	.....	.....	11,578	8	.....	.....	134,717	84,157	.62
1906	1,243	.....	14,788	[I]18,091	10,257	.....	[G]	12,568	.....	.....	.....	10,121	7	.....	.....	126,494	92,445	.73
1907	1,212	.....	12,207	43,524	10,000	.....	[G]	12,323	[M]	.....	.....	9,095	[M]9	[N]	.....	166,095	120,107	.72
1908	1,160	.....	10,859	45,799	9,424	.....	.....	11,207	[M]	.....	.....	9,523	[M]18	.....	.....	178,527	129,079	.72
1909	1,135	.....	10,633	47,859	9,299	.....	.....	9,534	[M]	.....	.....	10,745	[M]20	.....	.....	183,171	128,329	.70
1910	1,054	.....	9,916	52,029	8,795	.....	.....	8,899	[M]	.....	.....	11,753	[M]115	.....	.....	209,557	127,900	.61
1911	953	.....	8,817	56,069	8,248	.....	.....	9,526	[M]	.....	.....	9,796	[M]187	[N]	.....	220,449	134,045	.61
1912	874	.....	8,969	51,427	7,838	.....	.....	11,735	[M]	.....	.....	12,129	[M]1,572	[K]	4	222,935	164,213	.74
1913	948	.....	8,781	63,579	7,917	.....	.....	15,010	[N]	.....	.....	11,567	2,407	[K]	11	248,446	237,121	.95
1914	939	.....	8,536	73,632	8,170	.....	.....	20,068	[N]	.....	.....	9,680	3,560	[K]	8	265,763	214,125	.81
1915	888	.....	7,825	97,915	7,838	.....	.....	24,943	[N]	.....	.....	9,265	4,246	[K]	14	281,104	179,463	.64
1916	874	.....	7,744	107,072	7,593	.....	[L]1	27,645	[N]	.....	.....	8,731	6,234	[K]	8	300,767	330,900	1.10
1917	880	.....	7,751	107,508	7,733	.....	[L]12	32,413	[N]	.....	.....	8,379	8,978	[K]	10	335,316	522,635	1.56
1918	809	.....	7,285	103,347	7,408	.....	[L]8	38,750	[N]	.....	.....	7,867	12,596	[K]	8	355,928	703,944	1.98
1919	851	.....	7,736	86,911	8,137	.....	15	79,366	[N]	.....	.....	8,327	13,172	[K]	12	378,367	760,266	2.01
1920	906	.....	7,400	106,206	7,438	.....	14	96,868	[K]	.....	.....	8,249	16,831	[K]	13	442,929	1,360,745	3.07
1921	988	.....	7,335	114,634	7,418	.....	12	106,166	.....	.....	.....	7,822	19,333	[K]	12	472,183	814,745	1.73
1922	1,000	.....	6,781	149,571	7,425	.....	10	118,684	.....	.....	.....	7,021	26,715	[K]	13	557,531	895,111	1.61
1923	1,250	.....	7,085	160,929	7,609	.....	8	131,023	.....	.....	.....	6,358	44,785	[K]	18	732,407	978,430	1.34
1924	1,440	.....	6,811	173,538	7,486	.....	10	134,522	[K]	.....	.....	5,920	39,498	[K]	13	713,940	1,022,683	1.43
1925	1,695	.....	7,212	176,768	8,097	.....	24	144,648	[K]	.....	.....	5,763	29,173	[K]	12	763,743	1,284,960	1.68
1926	1,956	.....	7,272	179,195	8,961	.....	43	166,916	[K]	.....	.....	5,946	25,776	[K]	8	770,874	1,447,760	1.88
1927	2,242	.....	7,593	277,775	9,526	.....	60	217,389	[K]	.....	.....	6,023	21,307	[K]	7	901,129	1,172,830	1.30
1928	2,603	.....	7,015	249,857	9,956	.....	46	257,320	[K]	.....	.....	5,661	21,461	[K]	6	901,474	1,054,880	1.17
1929	3,377	.....	6,743	255,004	11,820	.....	19	296,876	[K]	.....	.....	5,574	19,314	[K]	7	1,007,323	1,280,417	1.27
1930	3,647	.....	6,486	216,486	12,803	.....	21	290,457	[K]	.....	.....	5,071	17,868	[K]	7	898,011	1,070,200	1.19
1931	3,363	.....	5,327	180,574	11,892	.....	6	332,437	[K]	.....	.....	4,472	14,834	[K]	7	851,081	550,630	.65
1932	3,508	.....	4,644	153,244	12,412	.....	5	312,478	[K]	.....	.....	3,876	13,418	[K]	16	785,159	680,460	.87
1933	3,181	.....	4,235	182,251	12,624	.....	5	402,609	[K]	.....	.....	3,815	11,227	[K]	30	905,656	608,000	.67
1934	3,804	.....	4,234	180,107	14,478	.....	10	381,516	[K]	.....	.....	4,095	12,556	.....	41	908,065	904,825	1.00
1935	4,236	.....	4,082	185,288	15,810	.....	[K]	392,666	[K]	.....	.....	3,902	13,755	.....	65	996,596	961,440	.96
1936	4,663	.....	3,847	206,555	17,070	.....	[K]	427,411	[K]	.....	.....	3,847	14,582	.....	63	1,099,687	1,199,820	1.09
1937	5,478	.....	3,559	228,839	19,189	.....	[K]	510,318	[K]	.....	.....	3,845	19,166	.....	77	1,279,160	1,513,340	1.18
1938	5,045	.....	3,298	174,994	17,426	.....	[K]	475,850	[K]	.....	.....	3,684	19,022	.....	82	1,214,355	1,373,060	1.13
1939	5,098	.....	3,156	159,913	17,382	.....	50	483,528	4	.....	.....	3,580	21,454	.....	.....	1,264,962	1,294,470	1.02
1940	4,999	.....	3,159	156,164	17,353	.....	24	493,209	3	.....	.....	3,444	25,711	.....	.....	1,353,214	1,385,440	1.02
1941	5,185	.....	3,510	154,702	16,750	.....	12	505,572	4	.....	.....	3,433	29,878	.....	.....	1,402,228	1,602,000	1.14
1942	5,421	.....	3,543	140,690	17,779	.....	9	483,097	.....	.....	.....	3,574	32,812	.....	.....	1,386,645	1,643,470	1.19
1943	5,059	.....	3,322	123,152	15,757	.....	10	594,343	.....	2	.....	3,349	34,253	.....	.....	1,505,613	1,809,020	1.20
1944	4,697	.....	2,937	124,616	14,118	.....	8	746,699	.....	4	.....	3,070	33,356	.....	.....	1,677,904	2,032,960	1.21
1945	4,648	.....	2,828	139,299	12,515	.....	8	754,710	.....	4	.....	2,879	36,219	.....	.....	1,713,655	2,094,250	1.22
1946	4,863	.....	2,908	134,794	12,996	.....	10	760,215	.....	23	.....	2,929	38,977	.....	.....	1,733,939	2,442,550	1.41
1947	4,762	.....	3,108	141,019	12,690	.....	8	820,210	.....	61	.....	2,617	44,772	.....	.....	1,856,987	3,577,890	1.93
1948	4,621	.....	3,600	154,455	12,667	.....	6	903,498	.....	33	.....	2,692	55,032	.....	.....	2,020,185	5,245,080	2.60
1949	4,425	.....	3,483	151,660	11,374	.....	18	744,834	637	43	.....	2,839	47,890	.....	.....	1,841,940	4,674,770	2.54
1950	4,143	.....	3,383	164,599	11,859	.....	12	829,874	1,228	21	.....	2,808	61,631	.....	.....	1,973,574	4,963,380	2.51
1951	4,254	25	3,140	186,869	11,345	.....	14	1,010,270	1,305	12	.....	2,757	68,929	.....	.....	2,247,711	5,690,410	2.53
1952	4,242	1,549	3,350	190,435	11,233	.....	15	1,022,139	1,737	10	.....	2,602	68,074	.....	.....	2,289,836	5,785,230	2.53
1953	3,800	5,183	3,610	202,570	10,649	.....	16	1,019,164	1,807	8	.....	3,038	82,618	.....	.....	2,357,082	6,316,980	2.68
1954	3,257	6,025	3,880	185,851	9,107	37	13	974,275	1,905	7	.....	2,902	93,533	.....	.....	2,314,988	6,424,930	2.78
1955	2,094	11,143	4,353	202,817	8,531	30	13	1,053,297	2,227	4	.....	2,320	99,483	.....	.....	2,484,428	6,870,390	2.77
1956	2,748	13,495	4,785	215,862	8,230	32	9	1,107,808	2,466	4	.....	2,179	104,830	.....	.....	2,617,283	7,302,234	2.79
1957	2,677	13,259	5,478	214,661	8,179	54	7	1,073,867	4,367	5	5	2,215	109,584	.....	.....	2,616,224	8,086,224	3.09
1958[P]	1,797	13,736	6,202	202,505	6,680	59	6	940,191	24,420	7	4	2,189	115,453	.....	.....	2,448,077	7,477,072	3.01
Total	202,690	64,415	655,797	7,863,034	1,199,117	212	597	21,923,870	42,110	248	9	461,162	1,658,302	.....	572	60,295,394	112,182,209	1.86

[G] Tenn. Incl. with Ky., 1876-1907, incl.

[H] Less than 500 bbls.

[I] Figures for Okla. and Kan. for years 1905-1906 shown together by *Mineral Resources;* here divided by aid of *Petroleum in U. S. and Possessions,* by Arnold and Kemnitzer.

[J] Mich. shown with Mo. in 1900-1911.

[K] Included under "Unclassified."

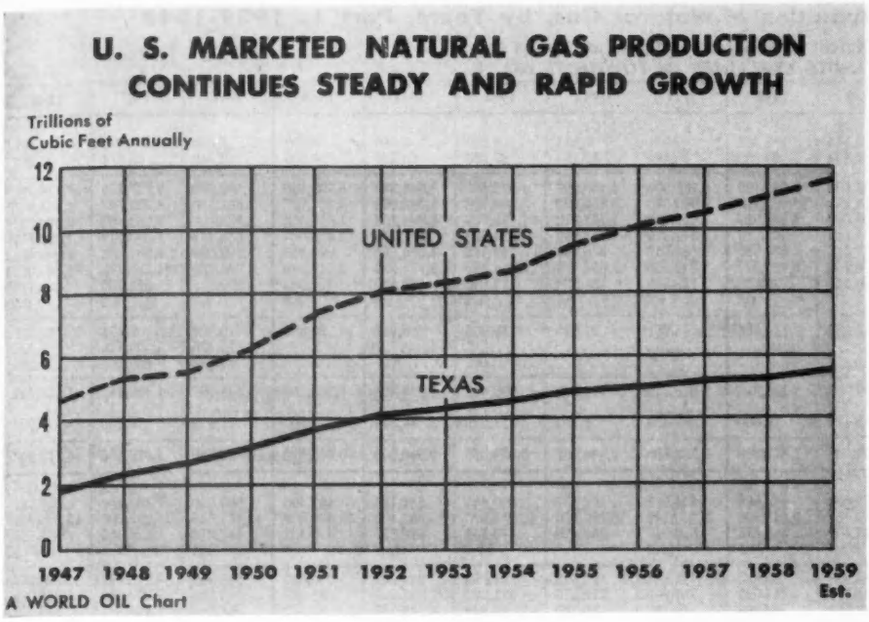
[L] Ky. and Tenn. in 1916-18 obtained with aid of *Mineral Resources and Petroleum in U. S. and Possessions.*

[M] Small prod. of Ut. (mostly used as fuel) shown with Wyo.

[N] Little prod. but no record available.

[O] Average price per bbl. for 1859-1875 from *Petroleum in U. S. and Possessions;* remainder from *Mineral Resources* and *Minerals Yearbook* except 1950 and 1951 estimated.

[P] Bureau of Mines for first 10 months; Nov. and Dec. est. by World Oil, from weekly reports of API and other sources.



Larger gain in natural gas production in 1959 foreseen

U.S. MARKETED production of natural gas will increase to a new peak of about 11.5 trillion cubic feet in 1959, WORLD OIL forecasts. That would be 4.4 percent more than the volume marketed in 1958. This gain in the coming year would be an improvement over the subnormal increase of the past year.

In 1958 the marketed production amounted to about 11,015 billion cubic feet, the U.S. Bureau of Mines estimated. That was only 3.1 percent more than in the previous year. That increase was much less than the gains of 5.9 percent in 1957, 7.2 percent in 1956, and 7.6 percent in 1955.

Stepped up growth of natural gas consumption and production in 1959 appears very likely. The improvement is promised because of changes for the better in two factors that retarded the industry in 1958. In the first place, demand for gas will be stimulated by better business in general and increased industrial production. In the second place, the supply of natural gas available for consumption will be increased through accelerated expansion of pipe line facilities, following recent allevation of governmental controls over the industry.

Especially significant and encouraging was the recent reversal of the earlier decision in the "Memphis" case. The new decision restores the former procedures with regard to needed increases in prices charged for gas by transmission companies. The pipe lines henceforth will be able again to maintain reasonably profitable rates. Under the original ruling, they were threatened with the possibility of heavy losses and destructive governmental price controls. That threat greatly discouraged pipe line construction in 1958.

Still handcapping the gas industry, however, is the government control of gas prices at the wells. The producer is subjected to utility-type regulation and price control. Producers are discouraged from drilling for gas. Development of new reserves is retarded. Supplies for the future are held down. Amendment of the Natural Gas Act would be necessary to remove this handicap to the industry.

The U.S. average price of natural gas at the well in 1958 has been estimated at 11.7 cents per thousand cubic feet. That was some improvement over the 11.3 cents reported for 1957.

The average value of natural gas at points of consumption in 1958 is estimated at about 44.5 cents per thousand cubic feet, compared with 43.1 cents in 1957.

Gross Withdrawals and Disposition of Natural Gas in U. S., in 1957, in Million Cubic Feet
(Source: U. S. Bureau of Mines Mineral Market Report MMS No. 2833)

STATE	GROSS WITHDRAWALS[1]			DISPOSITION		
	From Gas Wells	From Oil Wells	Total	Marketed Production[2]	Repressuring	Vented and Wasted[3]
Arkansas	18,000	36,000	54,000	31,327	16,045	6,628
California	144,000	609,000	753,000	492,338	255,644	5,018
Colorado	46,000	122,000	168,000	95,259	35,486	37,255
Illinois	700	20,300	21,000	9,647	130	11,223
Indiana	100	4,000	4,100	671	.....	3,429
Kansas	570,000	64,000	634,000	586,690	1,199	46,111
Kentucky	68,000	3,000	71,000	70,024	.....	976
Louisiana	1,877,000	470,000	2,347,000	2,078,901	187,057	81,042
Maryland	4,649	.....	4,649	4,649	.....	.....
Michigan	8,000	5,000	13,000	9,122	3,075	803
Mississippi	193,000	81,000	274,000	169,967	66,608	37,425
Montana	23,000	8,000	31,000	28,638	263	2,099
Nebraska	14,000	12,000	26,000	14,249	.....	11,751
New Mexico	509,000	260,000	769,000	723,004	1,530	44,466
New York	2,800	300	3,100	2,869	.....	231
North Dakota	1,000	18,000	19,000	15,450	3,550	.....
Ohio	28,000	4,500	32,500	30,384	57	2,059
Oklahoma	550,000	540,000	1,090,000	719,794	109,888	260,318
Pennsylvania	101,000	3,000	104,000	101,801	112	2,087
Texas	4,251,000	1,850,000	6,101,000	5,156,215	724,615	220,170
Utah	16,000	5,500	21,500	16,824	370	4,306
Virginia	2,536	.....	2,536	2,465	.....	71
West Virginia	200,000	4,000	204,000	202,440	119	1,441
Wyoming	89,000	70,000	159,000	117,256	11,515	30,229
Other States[4]	50	234	284	274	.....	10
Total: 1957	8,716,835	4,189,834	12,906,669	10,680,258	1,417,263	809,148
1956	8,306,550	4,066,355	12,372,905	10,081,923	1,426,648	864,334

[1] Marketed production plus quantities used in repressuring, vented, and wasted.
[2] Comprises gas sold or consumed by producers, including losses in transmission, amounts added to storage, and increases in gas in pipelines.
[3] Partly estimated. Includes direct waste on producing properties and residue blown to the air.
[4] Alabama, Florida, Missouri, and Tennessee.

U. S. Production and Consumption of Natural Gas, by Years, Part 1, 1939-1948

(Source: U. S. Bureau of Mines, except as noted)

UNITS EXPLAINED IN FOOTNOTE NO. 1

CLASSIFICATION[1]	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948
Production										
Wells: Gas wells drilled (Incl. Condensate wells)	2,145	2,382	2,911	2,597	2,290	3,069	3,227	3,000	3,235	2,897
Producing gas wells, Dec. 31 (Incl. Condensate wells)	53,530	53,880	55,500	56,150	57,200	58,780	60,600	62,740	63,676	63,212
Production: Gross Production	3,333,500	3,694,100	4,103,500	4,453,900	4,942,560	5,614,220	5,902,180	6,190,200	6,733,230	7,178,777
Source: (1). From gas wells	1,832,880	2,095,180	2,490,590	2,885,090	3,208,780	3,649,830	3,887,727	3,807,500	3,769,768	4,588,547
(2). From oil wells	1,500,680	1,598,920	1,612,910	1,568,810	1,733,780	1,964,390	2,014,453	2,382,700	2,963,462	2,590,230
Disposition: (1). Repressuring	171,401	362,916	644,379	752,619	824,803	882,979	1,061,951	1,038,242	1,083,119	1,220,579
(2). Vented and wasted	677,311	655,967	630,212	626,782	684,115	1,010,285	896,208	1,102,033	1,067,938	1,810,178
(3). Marketed production	2,476,756	2,660,222	2,812,658	3,053,475	3,414,689	3,711,039	3,918,686	4,036,605	[2]4,582,173	[2]5,148,020
Value at wells	120,243	120,493	138,508	154,236	176,893	189,809	191,006	212,251	274,709	333,173
Average value at wells	4.9	4.5	4.9	5.1	5.2	5.1	4.9	5.3	6.0	6.5
Underground storage: Net stored	8,032	14,995	16,251	21,024	18,953	9,917	25,335	19,320	9,673	57,371
Total stored	.....	.....	.....	.....	.....	.....	.....	75,435	96,316	136,406
Total withdrawn	.....	.....	.....	.....	.....	.....	.....	56,188	86,643	79,035
Interstate shipments[3]	689,795	738,844	815,672	916,969	990,457	1,029,758	1,105,760	1,145,901	1,402,157	1,756,629
Imports	131	.....	.....	.....	.....	.....	.....	.....	.....	.....
Exports	3,122	5,563	7,466	8,702	11,210	14,576	18,207	17,675	18,149	18,704
Treated at natural gasoline plants	2,150,000	2,471,400	2,763,300	2,864,400	3,028,000	3,300,000	3,653,870	3,663,760	4,070,150	4,393,500
Consumption										
Residential: Volume Consumed	391,153	443,646	442,067	498,537	529,444	562,183	607,400	660,820	802,150	896,348
Number of consumers	8,887,460	9,245,230	9,730,110	10,134,770	10,353,870	10,668,400	10,959,060	11,471,640	12,203,700	13,508,010
Value at point of consumption	287,600	315,515	318,093	352,520	370,558	388,359	415,122	447,018	526,355	585,188
Average value at point of consumption	73.5	71.1	72.0	70.7	70.0	69.1	68.3	67.6	65.6	65.6
Commercial: Volume consumed	118,334	134,644	144,844	183,603	204,793	220,747	230,099	241,802	285,213	323,054
Number of consumers	715,390	741,020	766,910	778,830	811,090	845,220	888,660	964,990	1,039,080	1,145,060
Value at point of consumption	58,494	64,399	68,398	80,189	87,648	92,137	97,572	102,566	125,844	142,170
Average value at point of consumption	49.4	47.8	47.2	43.7	42.8	41.7	42.4	42.4	44.1	44.0
Industrial: Volume consumed, Total	1,964,278	2,076,369	2,218,281	2,362,633	2,669,242	2,913,533	3,062,980	3,110,308	3,339,181	3,725,747
Field	680,884	711,861	686,158	721,063	780,986	855,180	916,952	897,809	933,761	1,021,513
Carbon Black	347,270	368,802	365,377	335,533	315,562	355,770	431,830	478,349	484,882	480,646
[4]Industrial Fuel	936,124	995,706	1,166,746	1,306,037	1,572,694	1,702,583	1,714,198	1,734,150	1,920,538	2,223,588
Petroleum refineries	97,685	128,007	148,127	201,670	243,584	315,311	338,458	331,520	363,892	441,470
Portland cement plants	40,212	41,949	54,208	64,540	51,748	35,588	38,349	58,004	60,499	72,139
Electric utility plants	191,131	183,156	205,156	238,736	305,576	359,745	326,190	306,924	373,037	478,097
Value at point of consumption, Total Industrial	187,627	197,090	233,547	258,458	300,731	313,775	321,501	332,772	376,119	466,201
Field	28,610	27,158	29,993	30,587	33,288	36,868	40,090	41,317	49,835	61,123
Carbon Black	3,263	3,702	4,135	4,338	4,624	5,763	9,854	14,470	17,316	22,723
Industrial Fuel	155,754	166,230	199,419	223,533	262,819	271,144	271,557	276,985	308,968	382,355
Avge. value at point of consumption, Total Ind.	9.6	9.5	10.5	10.9	11.3	10.8	10.5	10.7	11.3	12.5
Field	4.2	3.8	4.4	4.2	4.3	4.3	4.4	4.6	5.3	6.0
Carbon Black	0.9	1.0	1.1	1.3	1.5	1.6	2.3	3.0	3.6	4.7
Industrial Fuel	16.6	16.7	17.1	17.1	16.7	15.9	15.8	16.0	16.1	17.2
Total Consumption: Volume consumed	2,473,765	2,654,659	2,805,192	3,044,773	3,403,470	3,696,463	3,900,479	4,012,930	4,426,544	4,945,149
Value at point of consumption	533,721	577,004	620,038	691,167	758,937	794,271	834,195	882,356	1,028,318	1,193,559
Average value at point of consumption	21.6	21.7	22.1	22.7	22.3	21.5	21.4	22.0	23.2	24.1

U. S. Production and Consumption of Natural Gas, by Years, Part 2, 1949-1958

CLASSIFICATION[1]	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958[5]
Production										
Wells: Gas wells drilled (Incl. Condensate wells)	2,887	2,843	3,030	3,255	3,806	3,977	3,573	4,115	3,912	[6]5,005
Producing gas wells, Dec. 31 (Incl. Condensate wells)	63,346	64,900	65,100	65,450	68,200	70,192	71,475	74,261	77,041	[6]83,328
Production: Gross Production	7,564,825	8,479,650	9,689,372	10,272,566	10,645,798	10,984,850	11,719,794	12,202,159	12,906,669	13,225,000
Source: (1). From gas wells	4,986,126	5,603,200	6,481,452	6,839,177	7,095,237	7,466,007	7,841,958	8,279,559	8,716,835	8,985,000
(2). From oil wells	2,560,699	2,876,450	3,207,920	3,433,389	3,550,561	3,518,843	3,877,836	3,922,600	4,189,834	4,240,000
Disposition: (1). Repressuring	1,273,205	1,396,546	1,438,827	1,410,501	1,438,606	1,518,737	1,540,804	1,411,117	1,417,263	1,410,000
(2). Vented and wasted	853,884	801,044	793,186	848,608	810,276	723,567	773,639	727,004	809,148	800,000
(3). Marketed production[2]	[2]5,419,736	[2]6,282,060	[2]7,457,359	[2]8,013,457	[2]8,396,916	[2]8,742,546	9,405,351	10,064,038	10,680,258	11,015,000
Value at wells	344,034	408,521	542,964	623,649	774,966	882,501	978,357	1,083,812	1,201,759	1,288,755
Average value at wells	6.3	6.5	7.3	7.8	9.2	10.1	10.4	10.8	11.3	11.7
Underground Storage: Net stored	65,683	54,492	138,282	176,684	158,036	102,106	67,934	136,470	191,396	200,000
Total stored	172,051	229,752	347,690	398,593	404,838	432,283	505,185	589,232	672,377	700,000
Total withdrawn	106,368	175,260	209,428	221,909	246,802	330,177	437,251	452,762	480,981	500,000
Interstate Shipments[3]	2,007,878	2,543,538	3,242,777	3,794,542	4,200,793	[7]4,661,898	[7]5,083,905	[7]5,602,815	[7]6,047,771	[7]6,335,000
Imports	.....	.....	.....	7,807	9,225	6,847	10,888	10,380	37,941	40,000
Exports	20,054	25,727	24,163	27,456	28,322	28,726	31,029	35,963	41,655	45,000
Treated at natural gasoline plants	4,656,142	5,346,804	6,203,070	6,418,597	6,837,282	7,459,918	8,185,953	8,445,009	8,578,561	8,525,000
Consumption										
Residential: Volume consumed	992,544	1,198,369	1,474,725	1,621,966	1,685,503	1,894,248	2,123,952	2,327,564	2,500,269	2,710,000
Number of consumers	14,689,750	16,905,680	21,443,950	22,569,270	24,186,000	25,327,000	26,084,000	27,887,000	28,792,000	29,350,000
Value at point of consumption	665,536	826,393	1,120,819	1,347,171	1,457,963	1,692,447	1,884,946	2,126,114	2,324,790	2,547,400
Average value at point of consumption	67.1	69.0	76.0	83.1	86.5	89.3	88.7	91.3	93.0	94.0
Commercial: Volume consumed	347,818	387,838	464,309	515,669	530,650	584,957	629,219	716,871	775,916	850,000
Number of consumers	1,231,055	1,347,203	1,613,708	1,854,931	2,042,000	2,076,000	2,140,000	2,255,000	2,344,000	2,425,000
Value at point of consumption	158,105	184,430	245,609	294,187	323,475	378,242	394,790	465,478	534,485	595,000
Average value at point of consumption	45.5	47.6	52.9	57.0	61.0	64.7	62.7	64.9	68.9	70.0
Industrial: Volume consumed, Total	3,855,122	4,440,197	5,163,528	5,475,843	5,763,185	5,923,647	6,317,172	6,662,443	7,003,590	7,050,000
Field	1,059,628	1,187,473	1,441,870	1,483,754	1,471,085	1,456,883	1,507,671	1,420,550	1,479,720	1,425,000
Carbon Black	427,892	410,852	426,423	368,399	300,942	251,176	244,794	242,598	233,788	225,000
[4]Industrial Fuel	2,367,602	2,841,872	3,295,235	3,623,690	3,991,158	4,215,588	4,564,707	4,999,295	5,290,082	5,400,000
Petroleum refineries	422,357	455,096	537,774	536,402	558,695	563,315	625,243	679,343	678,810	675,000
Portland cement plants	84,521	96,986	102,508	111,479	115,039	125,257	125,000	.....	.....	.....
Electric utility plants	550,121	628,919	763,898	910,117	1,034,272	1,165,498	1,153,280	1,239,311	1,338,079	1,350,000
Value at point of consumption, Total Industrial	496,948	593,218	752,247	885,961	1,047,558	1,134,666	1,346,310	1,433,196	1,575,949	1,584,300
Field	65,210	73,301	97,429	115,371	124,338	120,668	152,595	149,162	162,397	159,600
Carbon Black	20,355	19,677	22,213	20,108	17,668	17,510	19,398	18,628	19,319	19,125
Industrial Fuel	411,383	500,240	632,564	750,482	905,562	996,488	1,174,317	1,265,406	1,394,233	1,405,575
Avge. value at point of consumption, Total Ind.	12.9	13.4	14.6	16.2	18.2	19.2	19.6	21.5	22.5	22.5
Field	6.2	6.2	6.8	7.6	8.5	8.3	10.1	10.5	11.0	11.2
Carbon Black	4.8	4.8	5.2	5.5	5.9	6.9	7.9	7.7	8.3	8.5
Industrial Fuel	17.4	17.6	19.2	20.7	22.7	23.6	25.7	25.3	26.4	26.0
Total Consumption: Volume consumed	5,195,484	6,026,404	7,102,562	7,613,478	7,979,338	8,402,852	9,070,343	9,706,878	10,279,775	10,610,000
Value at point of consumption	1,320,589	1,604,041	2,118,675	2,527,319	2,828,996	3,205,355	3,626,046	4,024,788	4,435,224	4,726,700
Avge. value at point of consumption	25.4	26.6	29.8	33.2	35.5	38.1	40.0	41.5	43.1	44.5

[1] Units—Volume: million cubic feet. No. of consumers: actual. Value: thousand dollars. Average Value: cents per Mcf. [2] Includes gas stored and lost in transmission. [3] Includes exports. [4] Includes gas used at petroleum refineries, by natural gas pipe lines, at electric utility plants, at portland cement plants, and as other industrial fuel. [5] Estimated with aid of reports of Bureau of Mines and American Gas Association. [6] WORLD OIL statistics. [7] Quantity received.

United States Marketed Production of Natural Gas, By States, By Years

(Millions of Cubic Feet)

Sources: U. S. Bureau of Mines, except for some figures for early years which are from "Petroleum in the United States and Possessions" by Ralph Arnold and William Kemnitzer, and except where otherwise indicated by footnotes.

YEAR	Alabama	Arizona	Arkansas	California	Colorado	Florida	Illinois	Indiana	Kansas	Kentucky	Louisiana	Maryland	Michigan	Mississippi	Missouri	Montana	Nebraska	New Mexico	New York
*Pre-1906	.....	.....	281	9,810	631	.....	1,505	471,800	81,865	13,243	31	.....	.....	.....	*613	.....	.....	.....	31,340
1906	.....	.....	21	153	23	.....	410	7,861	69,323	789	39	.....	.....	.....	34	.....	.....	.....	2,548
1907	.....	.....	*570	230	57	.....	1,155	6,624	76,707	1,303	88	.....	.....	.....	108	.....	.....	.....	3,288
1908	.....	.....	*1,208	479	50	.....	4,979	5,256	80,740	1,430	252	.....	.....	.....	152	.....	.....	.....	3,843
1909	.....	.....	*1,778	2,324	*45	.....	8,473	6,159	75,074	2,097	1,365	.....	1	.....	49	.....	.....	.....	4,696
1910	.....	.....	*2,412	2,764	*40	.....	6,723	5,760	59,380	1,357	4,110	.....	1	.....	47	.....	.....	.....	6,010
1911	.....	.....	*1,994	6,390	*35	.....	6,762	4,365	38,800	1,275	9,786	.....	2	.....	50	.....	.....	.....	5,240
1912	.....	.....	*1,465	9,355	*30	.....	5,603	3,618	28,068	1,951	14,493	.....	2	.....	53	.....	.....	.....	8,626
1913	.....	.....	*806	11,035	*27	.....	4,767	2,921	22,884	1,821	26,653	.....	2	.....	21	.....	.....	.....	8,515
1914	.....	.....	*633	17,829	*24	.....	3,548	2,580	22,628	1,422	26,775	.....	2	.....	18	.....	.....	.....	8,935
1915	.....	.....	992	21,891	*21	.....	2,690	2,261	27,046	1,667	25,540	.....	2	.....	27	6	.....	.....	7,977
1916	.....	.....	2,388	31,643	*18	.....	3,534	1,715	31,710	2,107	32,081	.....	1	.....	69	213	.....	.....	8,036
1917	.....	.....	5,610	49,427	*14	.....	4,439	1,712	24,439	2,802	31,287	.....	1	.....	31	334	.....	.....	8,372
1918	.....	.....	5,295	39,719	10	.....	4,473	1,667	27,825	3,022	26,094	.....	1	.....	22	177	.....	.....	8,461
1919	.....	.....	5,587	55,607	10	.....	3,825	1,407	16,150	2,057	47,062	.....	1	.....	5	858	.....	.....	8,124
1920	.....	.....	9,027	66,041	9	.....	3,013	1,779	21,158	3,345	58,274	.....	1	.....	4	818	.....	.....	8,419
1921	.....	.....	4,260	75,942	4	.....	2,646	1,066	15,717	4,820	58,004	.....	1	.....	4	336	.....	.....	6,583
1922	.....	.....	9,700	84,580	4	.....	3,383	947	20,289	5,872	70,267	.....	1	.....	3	486	.....	.....	6,947
1923	.....	.....	24,215	131,434	1	.....	4,049	880	30,913	11,953	112,031	.....	1	.....	17	1,470	.....	.....	6,497
1924	.....	.....	36,616	189,692	48	.....	4,072	998	25,580	12,875	160,945	.....	1	.....	71	1,071	.....	.....	6,196
1925	.....	.....	41,878	187,789	574	.....	4,165	1,168	26,917	10,770	152,620	.....	1	.....	34	1,496	.....	.....	6,210
1926	.....	.....	43,566	204,915	554	.....	3,808	901	38,095	10,410	157,423	.....	1	.....	1	2,283	.....	921	7,027
1927	.....	.....	30,450	212,364	1,725	.....	3,741	1,124	42,646	10,206	186,961	.....	1	.....	1	4,253	.....	1,019	5,908
1928	.....	.....	20,235	246,215	2,931	.....	3,051	1,290	45,644	15,383	227,821	.....	469	.....	360	6,277	.....	838	7,224
1929	.....	.....	19,928	342,214	2,787	.....	2,983	1,012	38,469	27,588	261,138	.....	4,526	90	324	9,659	.....	3,054	8,387
1930	.....	.....	18,585	334,789	3,312	.....	2,890	1,217	37,630	28,023	278,341	.....	2,075	179	1,064	10,060	.....	9,497	9,624
1931	.....	.....	13,300	305,930	2,536	.....	2,130	1,337	38,742	27,870	224,155	.....	472	6,048	1,534	10,949	.....	19,354	7,868
1932	.....	.....	10,235	263,484	2,547	.....	1,769	1,349	40,690	29,005	201,561	.....	968	8,648	932	13,295	.....	17,604	8,813
1933	.....	.....	8,288	259,799	2,449	.....	1,631	1,544	41,596	31,380	197,826	.....	1,528	8,679	673	14,391	.....	19,148	6,865
1934	.....	.....	7,024	268,122	2,633	.....	1,868	1,802	46,909	33,124	225,713	.....	2,789	8,245	549	14,971	.....	24,075	6,278
1935	.....	.....	6,157	284,109	2,843	.....	1,448	1,777	57,125	39,738	249,450	.....	4,203	9,643	609	19,870	.....	27,931	8,288
1936	.....	.....	8,500	320,406	3,687	.....	865	2,241	69,178	43,903	290,151	.....	7,167	11,821	399	23,003	.....	33,928	12,431
1937	.....	.....	9,690	329,769	3,186	.....	1,040	1,551	83,890	55,719	315,301	.....	9,080	13,348	444	24,765	.....	46,337	21,325
1938	.....	.....	11,301	315,168	1,904	.....	1,169	1,299	75,203	46,163	283,899	.....	10,165	13,656	1,369	21,216	.....	50,706	39,402
1939	.....	.....	10,107	348,361	2,015	.....	2,746	791	80,556	47,771	294,370	.....	10,726	14,527	538	23,178	.....	60,284	29,222
1940	.....	.....	14,379	351,950	2,533	.....	8,359	1,137	90,003	53,056	343,191	.....	12,648	6,365	310	26,231	.....	63,990	12,187
1941	.....	.....	19,148	374,905	3,256	.....	10,053	1,522	111,121	69,067	403,855	.....	13,916	4,268	196	28,499	.....	64,655	10,456
1942	.....	.....	19,456	403,968	4,865	.....	14,484	1,599	112,921	80,089	447,686	.....	15,521	2,082	100	31,475	.....	78,164	8,718
1943	.....	.....	36,469	457,757	6,445	.....	18,120	1,450	133,729	92,364	505,294	.....	18,006	1,461	124	31,562	.....	86,500	8,062
1944	.....	.....	46,453	502,017	5,141	6	18,137	1,014	157,733	94,223	534,688	.....	19,653	1,352	159	32,102	.....	87,727	7,052
1945	.....	.....	46,600	502,442	4,914	6	16,663	1,543	145,959	81,714	542,789	.....	21,874	4,587	90	31,829	.....	105,023	9,210
1946	.....	.....	45,177	487,904	6,728	6	17,166	1,094	165,225	70,396	525,178	.....	20,879	7,225	40	30,713	.....	119,262	5,084
†1947	.....	.....	*50,440*	*544,950*	*8,259*	.....	*16,679*	*666*	*202,177*	*80,040*	*573,151*	.....	*25,479*	*39,987*	*33*	*32,549*	.....	*142,566*	*4,776*
‡1947	.....	.....	50,630	560,510	8,392	8	17,023	877	209,321	96,459	581,398	.....	18,821	40,037	38	34,282	.....	142,740	4,600
1948	.....	.....	53,946	570,954	8,967	27	14,062	553	245,189	70,095	686,061	.....	14,981	59,899	27	36,551	.....	194,749	4,705
1949	.....	.....	47,788	550,903	8,490	39	12,391	334	294,078	51,851	732,845	.....	14,753	68,062	24	35,291	.....	204,961	3,693
1950	2	.....	48,047	558,398	11,168	.....	13,285	956	364,024	73,316	831,771	373	11,250	114,153	21	39,186	17	212,909	3,336
1951	1	.....	44,656	566,751	14,128	10	11,425	845	417,538	76,097	1,054,199	3,422	11,194	158,845	14	36,424	3,895	300,169	3,214
1952	4	.....	42,325	517,450	34,260	15	10,183	836	412,544	73,427	1,237,143	2,372	9,052	174,100	16	28,714	5,568	359,377	3,627
1953	41	.....	41,510	531,346	28,509	34	9,282	701	420,607	71,405	1,293,644	1,408	7,774	154,254	15	27,889	6,748	399,086	2,347
1954	87	.....	33,471	507,289	45,705	35	9,475	735	412,369	72,713	1,399,222	1,394	6,962	140,448	16	30,252	6,801	449,346	2,598
1955	282	15	32,123	538,178	49,152	36	8,033	1,226	471,041	73,214	1,680,032	3,116	8,300	163,167	15	28,255	12,515	540,664	3,637
1956	42	21	30,162	504,458	54,205	35	6,177	791	526,091	73,687	1,886,302	4,619	10,911	185,137	12	25,847	13,541	626,340	4,098
1957	190	.....	31,327	492,338	95,259	34	9,647	671	586,690	70,024	2,078,901	4,649	9,122	169,967	12	28,638	14,249	723,004	2,869
*1958	200	.....	36,650	479,300	85,500	35	7,650	850	616,600	67,000	2,246,800	4,750	10,200	151,750	15	24,600	19,850	735,100	3,550
Total	849	36	1,094,429	14,488,597	514,401	326	346,968	570,513	7,452,869	1,944,458	23,272,906	26,103	310,000	1,702,043	11,473	793,775	83,184	5,808,462	446,568

* Estimate. † Old basis, as in prior years: excludes gas stored and lost in transmission: not included below in totals. ‡ New basis, as in subsequent years: includes gas stored and lost in transmission: included below in totals.

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United States Marketed Production of Natural Gas, By States, By Years (Continued)

YEAR	North Dakota	Ohio	Oklahoma	Pennsylvania	South Dakota	Tennessee	Texas	Utah	Virginia	Washington	West Virginia	Wyoming	Others	Total United States	Value at Wells $1,000	Value at Wells ¢ Mcf.	Cost to Users $1,000	Cost to Users ¢ Mcf.
*Pre-1906	.....	305,593	2,215	1,611,066	.....	*1	815	*150	.....	.....	387,799	506	42,517	**2,961,781**	.....	.....	426,448	14.4
1906	.....	45,436	3,520	138,161	23	2	*1,000	.....	.....	.....	119,400	*100	.....	**388,843**	.....	.....	46,874	12.1
1907	2	52,041	4,867	135,516	37	2	*1,200	.....	.....	.....	122,687	*140	.....	**406,622**	.....	.....	54,222	13.3
1908	10	47,442	11,925	130,476	36	2	*1,500	.....	.....	.....	112,181	*180	.....	**402,141**	.....	.....	54,640	13.6
1909	8	53,223	28,037	127,697	23	2	*3,000	.....	.....	.....	166,435	*220	.....	**480,706**	.....	.....	63,207	13.1
1910	19	48,232	50,430	126,867	43	1	*4,000	.....	.....	.....	190,706	*253	.....	**509,155**	.....	.....	70,756	13.9
1911	13	49,450	67,276	108,869	26	1	5,503	.....	.....	.....	206,891	*265	.....	**512,993**	.....	.....	74,622	14.5
1912	*18	56,210	73,799	112,150	*36	2	7,470	.....	.....	.....	239,007	*247	.....	**562,203**	.....	.....	84,564	15.0
1913	*22	50,612	75,018	118,860	*45	2	12,160	.....	.....	.....	245,454	*273	.....	**581,898**	.....	.....	87,847	15.1
1914	*20	68,270	78,167	110,745	*41	1	13,434	.....	.....	.....	236,489	*306	.....	**591,867**	.....	.....	94,116	15.9
1915	*36	79,510	87,517	113,692	*53	2	13,324	.....	.....	.....	244,004	*321	.....	**628,579**	.....	.....	101,312	16.1
1916	*35	69,888	123,517	130,484	*43	2	15,810	.....	.....	.....	299,319	*557	.....	**753,170**	.....	.....	120,227	16.0
1917	*27	68,917	137,384	133,397	*33	11	17,047	.....	.....	.....	308,617	*1,209	.....	**795,110**	.....	.....	142,089	17.9
1918	35	61,261	124,317	123,813	42	1,827	13,440	.....	.....	.....	265,161	4,339	.....	**721,001**	.....	.....	153,554	21.3
1919	2	63,154	163,649	113,489	33	77	24,710	.....	.....	.....	234,095	6,014	.....	**745,916**	.....	.....	160,888	21.6
1920	1	58,938	154,467	125,787	20	15	37,063	.....	.....	.....	239,719	10,312	.....	**798,210**	.....	.....	196,194	24.6
1921	1	47,412	124,058	86,144	10	11	44,504	.....	.....	.....	174,921	15,608	.....	**662,052**	.....	.....	174,617	26.4
1922	1	51,481	140,631	101,276	15	3	47,945	.....	.....	.....	195,288	23,427	.....	**762,546**	84,873	11.1	221,535	29.1
1923	.....	53,812	203,082	112,562	33	4	74,535	.....	.....	.....	203,867	35,523	97	**1,006,976**	100,849	10.0	240,001	23.8
1924	.....	47,396	214,452	105,863	3	1	107,247	.....	.....	.....	182,285	46,036	73	**1,141,521**	105,779	9.3	253,856	22.2
1925	.....	43,235	249,285	101,632	4	9	134,872	.....	.....	.....	180,345	45,539	28	**1,188,571**	112,047	9.4	265,271	22.3
1926	.....	47,363	286,421	107,089	10	11	175,392	.....	.....	.....	180,223	46,567	38	**1,313,019**	124,693	9.5	300,168	22.9
1927	.....	51,381	326,864	105,709	92	9	254,063	927	.....	.....	162,375	43,582	27	**1,445,428**	127,468	8.8	317,930	22.0
1928	.....	56,341	320,861	99,466	54	.....	301,990	1,105	.....	.....	163,018	47,490	76	**1,568,139**	139,898	8.9	363,726	23.2
1929	.....	57,936	357,893	101,951	99	25	464,928	693	.....	.....	167,333	44,648	28	**1,917,693**	157,596	8.2	413,276	21.6
1930	.....	63,394	348,116	88,706	98	24	517,880	393	.....	.....	144,180	43,219	125	**1,943,421**	147,048	7.6	416,090	21.4
1931	.....	56,326	263,685	74,797	12	25	464,580	219	.....	.....	124,797	39,770	.....	**1,686,436**	117,505	7.0	392,816	23.3
1932	.....	51,466	255,487	61,611	10	22	456,832	184	.....	.....	100,540	28,938	.....	**1,555,990**	98,985	6.4	384,632	24.7
1933	.....	47,929	245,759	63,579	10	48	475,691	48	.....	111	100,653	25,830	‡ 19	**1,555,474**	97,096	6.2	368,540	23.7
1934	.....	50,330	254,457	86,238	11	12	602,976	182	.....	104	109,161	23,148	.....	**1,770,721**	106,438	6.0	395,378	22.3
1935	.....	49,592	274,313	94,464	8	.....	642,366	98	.....	138	115,772	26,643	.....	**1,916,595**	110,402	5.8	329,374	22.4
1936	.....	46,994	280,481	110,362	9	84	734,561	92	.....	141	138,076	29,322	.....	**2,167,802**	119,193	5.5	476,813	22.0
1937	.....	42,783	296,260	115,928	10	17	854,561	2,366	.....	143	149,084	31,023	.....	**2,407,620**	123,457	5.1	528,354	21.9
1938	71	35,257	263,164	76,547	10	6	882,473	4,277	.....	117	134,342	26,678	.....	**2,295,562**	113,571	4.9	500,698	21.8
1939	76	36,469	250,875	93,882	10	8	979,427	4,854	60	63	159,226	26,614	.....	**2,476,756**	120,243	4.9	534,240	21.6
1940	.....	40,639	257,626	90,725	9	9	1,063,538	5,124	80	36	188,751	27,346	.....	**2,660,222**	120,493	4.5	577,939	21.7
1941	47	41,858	234,054	92,819	7	10	1,086,312	5,562	106	1	207,681	29,284	.....	**2,812,658**	138,508	4.9	621,333	22.1
1942	122	45,055	269,704	93,532	7	10	1,170,345	5,163	92	.....	215,193	33,124	.....	**3,053,475**	154,236	5.1	692,737	22.7
1943	177	52,001	285,045	93,543	6	10	1,323,885	4,464	77	.....	223,787	34,351	.....	**3,414,689**	176,893	5.2	760,950	22.3
1944	200	51,724	310,888	92,987	5	10	1,525,515	6,223	57	.....	181,452	34,521	.....	**3,711,039**	189,809	5.1	794,271	21.5
1945	217	49,967	357,530	82,188	5	10	1,711,401	6,562	56	.....	160,225	35,282	.....	**3,918,686**	191,006	4.9	834,195	21.4
1946	344	61,570	380,938	92,443	5	47	1,776,148	4,252	57	.....	178,958	33,266	.....	**4,030,605**	212,251	5.3	882,356	22.0
†*1947*	.....	*73,989*	*393,216*	*94,252*	.....	*80*	*1,932,857*	.....	.....	.....	*182,072*	*40,083*	*6,392*	*4,444,693*	*266,682*	*6.0*	*1,031,169*	*23.2*
‡1947	442	68,946	419,010	91,971	6	80	1,992,704	6,040	64	.....	192,233	45,550	.....	**4,582,173**	274,709	6.0	1,028,318	23.2
1948	643	65,619	480,573	87,578	2	127	2,289,923	6,610	74	.....	203,681	52,424	.....	**5,148,020**	333,173	6.5	1,193,559	24.1
1949	533	46,512	435,262	84,739	1	83	2,588,921	6,126	65	.....	181,176	50,815	.....	**5,419,736**	341,443	6.3	1,320,589	25.4
1950	.....	43,163	482,360	91,137	.....	132	3,126,402	.....	.....	.....	189,980	62,062	4,612	**6,282,060**	408,776	6.5	1,604,041	26.5
1951	◎463	38,879	538,756	128,715	◎	132	3,781,136	‡	64	.....	191,146	‡75,241	.....	**7,457,359**	542,964	7.3	2,118,675	29.8
1952	369	30,993	554,033	108,684	6	107	4,147,805	3,006	1,133	.....	180,995	75,313	.....	**8,013,457**	623,649	7.8	2,527,319	33.2
1953	◎503	37,542	599,955	105,558	◎	89	4,383,158	7,075	3,697	.....	186,477	76,262	.....	**8,396,916**	774,966	9.2	2,828,996	35.5
1954	◎1,100	28,824	616,355	145,934	◎	89	4,551,232	16,024	1,401	.....	191,601	71,068	.....	**8,742,546**	882,501	10.1	3,205,355	38.1
1955	◎5,256	33,756	614,976	99,172	.....	39	4,730,798	17,163	968	.....	212,403	77,819	.....	**9,405,351**	978,357	10.4	3,626,046	40.0
1956	11,725	25,368	678,603	104,508	.....	45	4,999,889	17,268	2,926	.....	204,717	84,398	.....	**10,081,923**	1,083,812	10.8	4,024,788	41.5
1957	15,450	30,384	719,794	101,801	.....	38	5,156,215	16,824	2,465	.....	202,440	117,256	.....	**10,680,258**	1,206,869	11.3	4,430,583	43.1
*1958	15,000	31,200	764,400	117,700	.....	50	5,245,800	20,500	2,450	.....	207,300	120,200	.....	**11,015,000**	1,288,755	11.7	4,728,464	44.6
Total	52,988	2,939,074	15,142,111	7,154,609	1,101	3,386	65,039,426	169,574	15,892	854	10,203,646	1,810,429	47,640	**161,448,690**	§	§	46,609,779	§

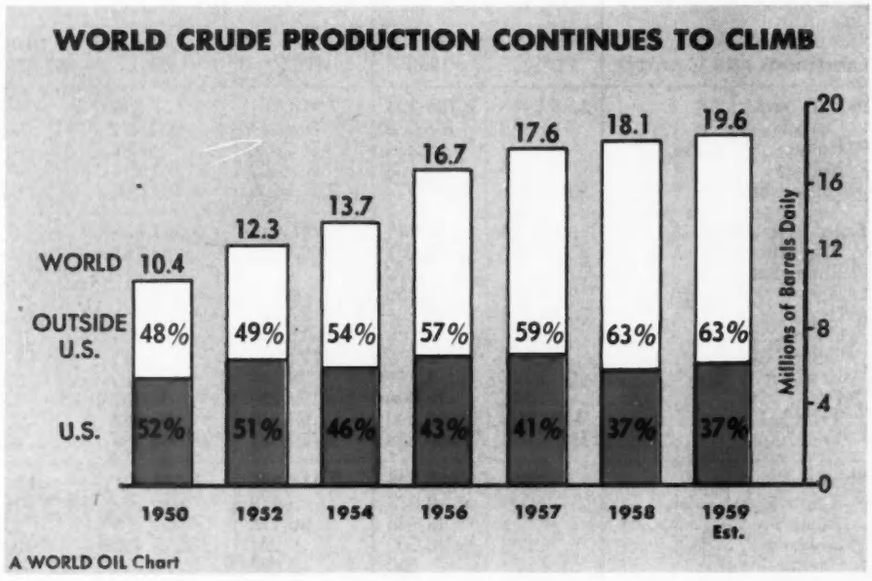
* Estimate. † Old basis, as in prior years; excludes gas stored and lost in transmission; not included below in totals. ‡ New basis, as in subsequent years; includes gas stored and lost in transmission; included below in totals. § Not available. ‡ Wyoming includes Utah. ◎ North Dakota includes South Dakota. ‡ Others in 1933: Alaska.

World crude output due to increase sharply

WORLD PRODUCTION of crude oil is due to increase sharply in 1959 to a new peak of about 19,650,000 barrels daily. That would be a gain of 1,547,000 barrels daily or 8.5 percent over the 1958 output.

This expected increase would contrast with an exceptionally small gain in 1958. The production of 18,103,000 barrels daily in 1958 was only 847,000 barrels daily or 2.8 percent above 1957.

The sharp increase in world production in 1959 will reflect continued expansion of output outside the United States and an exceptionally large gain in U.S. production. Estimated production of 12,370,000 barrels daily outside the United States would be a gain of 974,000 barrels or 8.5 percent. The expected U.S. output of 7,280,000 barrels daily would be an increase of 573,000 barrels or likewise 8.5 percent.



In 1958 there had been a continuance of the usual relatively large growth of production outside the United States. The production of 11,396,000 barrels daily was an increase of 950,000 barrels or 9.1 percent over 1957. But U.S. production failed to increase moderately as usual, and instead decreased by 463,000 barrels daily or 6.5 percent in averaging only 6,707,000 barrels per day.

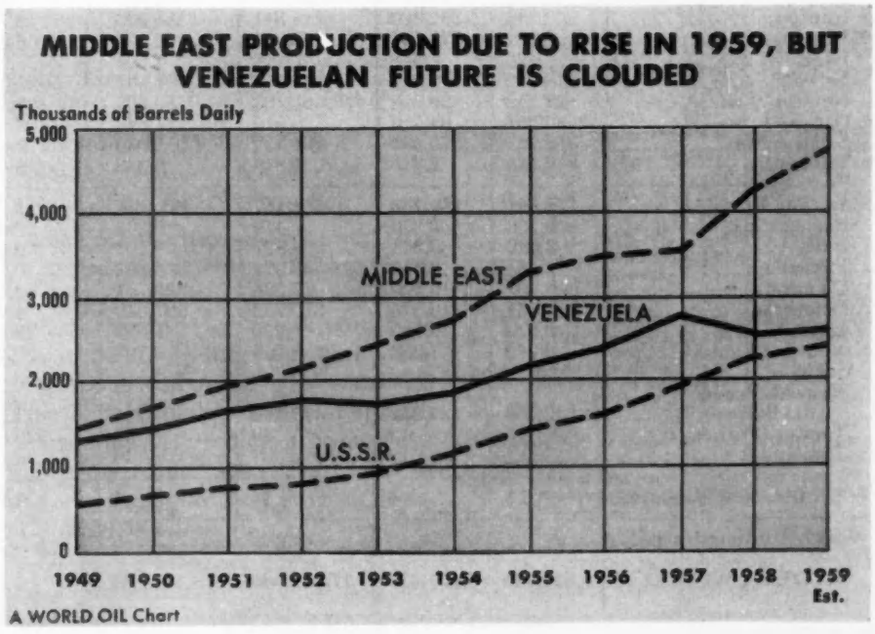
Sharply increased crude production in 1959 will be required to meet expected strong demand for oils throughout the world. Demand and production outside the United States are expected to increase over 8 percent. U.S. crude output must be stepped up 8.5 percent because consumption will be up 4 percent and oils will be added to storage instead of being used from storage in lieu of production as in 1958.

Crude Oil Production of World, U. S., and Countries Outside U. S., by Years

(Source: U. S. Bureau of Mines except 1958 and forecast for 1959 outside U. S. estimated by WORLD OIL.)

(THOUSANDS OF BARRELS)

Year	WORLD Total	WORLD Daily	U.S. Total	U.S. Daily	OUTSIDE U.S. Total	OUTSIDE U.S. Daily
1918	503,515	1,378	355,928	975	147,587	403
1919	555,875	1,523	378,367	1,037	177,508	486
1920	688,884	1,887	442,929	1,213	245,955	674
1921	766,002	2,098	472,183	1,294	293,819	804
1922	858,898	2,353	557,531	1,528	301,367	825
1923	1,015,736	2,783	732,407	2,007	283,329	776
1924	1,014,318	2,779	713,940	1,956	300,378	823
1925	1,068,933	2,928	763,743	2,092	305,190	836
1926	1,096,823	3,005	770,874	2,112	325,949	893
1927	1,262,582	3,459	901,129	2,469	361,453	990
1928	1,324,774	3,629	901,474	2,469	423,300	1,160
1929	1,485,867	4,071	1,007,323	2,760	478,544	1,311
1930	1,410,037	3,863	898,011	2,460	512,626	1,403
1931	1,372,532	3,760	851,081	2,332	521,451	1,428
1932	1,309,677	3,588	785,159	2,151	524,518	1,437
1933	1,422,146	3,951	905,656	2,481	536,490	1,470
1934	1,522,281	4,170	908,065	2,488	614,216	1,682
1935	1,654,488	4,532	996,596	2,730	657,892	1,802
1936	1,791,540	4,908	1,099,687	3,013	691,853	1,895
1937	2,039,231	5,587	1,279,160	3,505	760,071	2,082
1938	1,988,041	5,446	1,214,355	3,327	773,686	2,119
1939	2,086,160	5,716	1,264,962	3,466	824,198	2,250
1940	2,149,821	5,874	1,353,214	3,697	796,607	2,177
1941	2,220,657	6,084	1,402,228	3,842	818,429	2,242
1942	2,093,100	5,735	1,386,645	3,799	706,455	1,935
1943	2,256,637	6,183	1,505,613	4,125	751,034	2,058
1944	2,592,289	7,083	1,677,904	4,584	914,385	2,498
1945	2,594,697	7,109	1,173,665	4,695	881,042	2,414
1946	2,745,430	7,522	1,733,939	4,751	1,011,491	2,771
1947	3,022,139	8,280	1,856,987	5,088	1,165,152	3,192
1948	3,433,234	9,380	2,020,185	5,520	1,413,049	3,861
1949	3,404,132	9,326	1,841,940	5,046	1,562,192	4,280
1950	3,802,955	10,419	1,973,574	5,407	1,829,421	5,012
1951	4,282,730	11,734	2,247,711	6,158	2,035,019	5,576
1952	4,504,708	12,308	2,289,836	6,256	2,214,872	6,052
1953	4,786,989	13,115	2,357,082	6,458	2,429,907	6,657
1954	5,006,205	13,716	2,314,988	6,342	2,691,217	7,374
1955	5,641,439	15,456	2,484,428	6,807	3,157,011	8,649
1956	6,101,967	16,672	2,617,283	7,151	3,484,684	9,521
1957	6,429,712	17,616	2,616,901	7,170	3,812,811	10,446
1958	6,607,436	18,103	2,448,077	6,707	4,159,359	11,396
1959 Est.	7,172,250	19,650	2,657,200	7,280	4,515,050	12,370

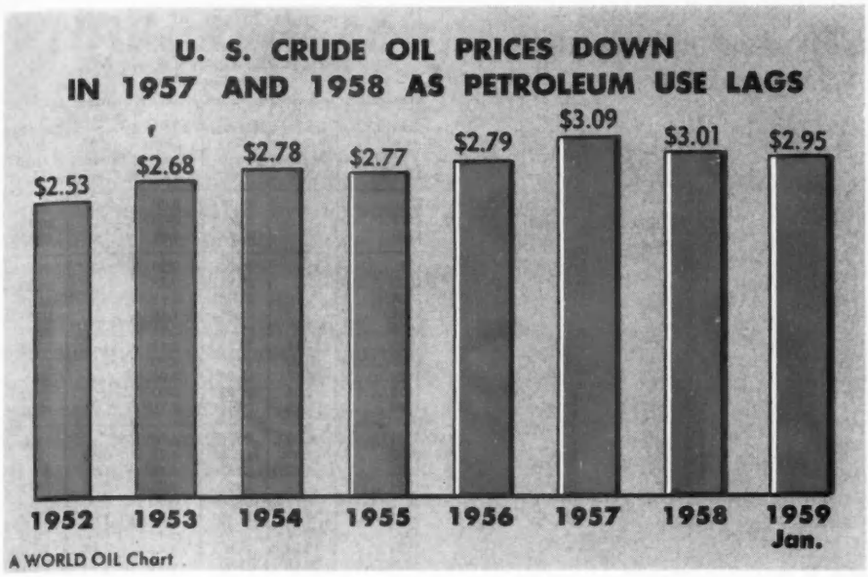


World Crude Oil Production, by Countries, 1957 and 1958, and Cumulative Through 1958

(Sources: U. S. Bureau of Mines except 1958 from private sources or estimated by WORLD OIL)

Continent and Country	Annual Production (Thousands of Barrels) 1957	Annual Production (Thousands of Barrels) 1958	Daily Average Production (Actual Barrels) 1957	Daily Average Production (Actual Barrels) 1958	% Diff. '57–'58	Year's Production As Percent of World 1957	Year's Production As Percent of World 1958	Cumulative Production To January 1, 1959 (Thousands of Barrels) Total	Cumulative Production To January 1, 1959 (Thousands of Barrels) As % of World
North America	**2,887,408**	**2,706,124**	**7,910,707**	**7,414,038**	— 6.3	**44.90**	**40.95**	**64,581,931**	**59.28**
Canada	181,848	165,236	498,214	452,701	— 9.1	2.82	2.50	1,123,168	1.03
Cuba	394	358	1,079	981	— 9.1	0.01	0.00	4,151	0.00
Mexico	88,265	92,453	241,822	253,296	+ 4.7	1.37	1.40	3,159,218	2.90
United States	2,616,901	2,448,077	7,169,592	6,707,060	— 6.5	40.70	37.05	60,295,394	55.35
South America	**1,168,710**	**1,117,954**	**3,201,945**	**3,062,888**	— 4.3	**18.18**	**16.92**	**14,679,307**	**13.48**
Argentina	33,955	34,231	93,027	93,783	+ 0.8	0.53	0.52	695,778	0.64
Barbados	.....	.....	.....	.....	.....	.....	.....	8	0.00
Bolivia	3,464	3,455	9,490	9,466	— 0.3	0.05	0.05	21,740	0.02
Brazil	10,066	18,923	27,578	51,844	+ 88.0	0.16	0.29	39,398	0.04
Chile	4,383	5,568	12,008	15,255	+ 27.0	0.07	0.08	21,360	0.02
Colombia	45,857	46,375	125,636	127,055	+ 1.1	0.71	0.70	839,365	0.77
Ecuador	3,228	3,144	8,844	8,614	— 2.6	0.05	0.05	73,987	0.07
Peru	19,246	19,000	52,729	52,055	— 1.3	0.30	0.29	541,041	0.49
Trinidad	34,058	36,700	93,310	100,548	+ 7.8	0.53	0.55	625,756	0.58
Venezuela	1,014,453	950,558	2,779,323	2,604,268	— 6.3	15.78	14.39	11,820,874	10.85
Europe	**887,711**	**1,005,729**	**2,432,085**	**2,755,421**	+ 13.3	**13.81**	**15.22**	**13,505,587**	**12.40**
Albania	2,000	3,833	5,479	10,501	+ 91.7	0.03	0.06	33,236	0.03
Austria	21,943	19,848	60,118	54,378	— 9.5	0.34	0.30	237,580	0.22
Bulgaria	2,200	2,000	6,027	5,480	— 9.1	0.04	0.03	7,336	0.01
Czechoslovakia	950	650	2,603	1,781	— 31.6	0.01	0.01	11,910	0.01
France	10,119	9,950	27,723	27,260	— 1.7	0.16	0.15	61,292	0.05
Germany, East	32	33	88	90	+ 2.3	0.00	0.00	336	0.00
Germany, West	28,499	31,464	78,079	86,203	+ 10.4	0.44	0.48	270,776	0.25
Great Britain	614	591	1,682	1,619	— 3.8	0.01	0.01	8,514	0.01
Hungary	5,050	5,302	13,836	14,526	+ 5.0	0.08	0.08	98,246	0.09
Italy and Sicily	9,324	11,680	25,545	32,000	+ 25.3	0.14	0.17	32,712	0.03
Netherlands	10,632	10,900	29,129	29,863	+ 2.5	0.17	0.17	73,095	0.07
Poland	1,400	1,278	3,836	3,501	— 8.7	0.02	0.02	292,361	0.27
Rumania	85,700	87,600	234,795	240,000	+ 2.2	1.33	1.32	1,804,073	1.65
U.S.S.R. (Russia)	706,400	817,300	1,935,342	2,239,178	+ 15.7	10.99	12.37	10,556,556	9.69
Yugoslavia	2,848	3,300	7,803	9,041	+ 15.9	0.05	0.05	17,564	0.02
Africa	**18,189**	**32,353**	**49,833**	**88,638**	+ 77.9	**0.28**	**0.49**	**299,192**	**0.27**
Algeria	100	3,410	274	9,342	+ 3,309.5	0.00	0.05	6,024	0.01
Angola	84	884	230	2,422	+ 953.0	0.00	0.02	1,030	0.00
Egypt	16,150	21,718	44,247	59,501	+ 34.5	0.25	0.33	278,601	0.25
French Equatorial Africa	1,282	3,559	3,512	9,751	+ 177.6	0.02	0.05	4,841	0.00
Morocco	564	562	1,545	1,540	— 0.3	0.01	0.01	6,467	0.01
Nigeria	9	2,220	25	6,082	+24,228.0	0.00	0.03	2,229	0.00
Asia, Total	**1,467,689**	**1,745,272**	**4,021,066**	**4,781,567**	+ 18.9	**22.82**	**26.41**	**15,859,327**	**14.56**
Asia, Middle East	**1,291,698**	**1,564,486**	**3,538,889**	**4,286,263**	+ 21.1	**20.09**	**23.68**	**12,663,940**	**11.63**
Bahrain	11,690	14,872	32,027	40,745	+ 27.2	0.18	0.23	213,442	0.20
Iran	262,742	301,490	719,841	826,000	+ 14.7	4.09	4.56	3,430,621	3.15
Iraq	162,722	270,537	445,814	741,197	+ 66.3	2.53	4.09	2,054,727	1.89
Israel	425	548	1,164	1,501	+ 28.9	0.00	0.01	1,125	0.00
Kuwait	416,046	510,015	1,139,852	1,397,301	+ 22.6	6.47	7.72	3,149,060	2.89
Neutral Zone	23,259	29,310	63,723	80,301	+ 26.0	0.37	0.44	79,137	0.07
Qatar	50,558	64,913	138,515	177,844	+ 28.4	0.78	0.99	326,556	0.30
Saudi Arabia	362,121	370,486	992,112	1,015,030	+ 2.3	5.63	5.60	3,400,339	3.12
Turkey	2,135	2,315	5,849	6,343	+ 8.4	0.04	0.04	8,933	0.01
Asia, Far East	**175,991**	**180,786**	**482,167**	**495,304**	+ 2.7	**2.73**	**2.73**	**3,195,387**	**2.93**
Burma	2,730	3,370	7,479	9,233	+ 23.4	0.04	0.05	} 392,307	} 0.36
India	3,222	3,541	8,827	9,701	+ 9.9	0.05	0.05		
Pakistan	2,161	2,150	5,921	5,891	— 0.5	0.03	0.04		
China	6,400	10,500	17,534	28,767	+ 64.1	0.10	0.15	42,627	0.04
Indonesia	114,151	119,373	312,742	327,049	+ 4.6	1.78	1.81	1,953,628	1.79
Japan	2,274	2,583	6,230	7,077	+ 13.6	0.03	0.04	116,396	0.11
New Guinea	2,279	1,386	6,244	3,797	— 39.2	0.04	0.02	22,572	0.02
Sakhalin	N.A.	N.A.	N.A.	N.A.	.....	.....	.....	137,740	0.13
Sarawak-Brunei (Br. Borneo)	42,756	37,852	117,140	103,704	— 11.5	0.66	0.57	529,624	0.48
Taiwan (Formosa)	18	13	49	36	— 26.5	0.00	0.00	475	0.00
Thailand	.....	18	.....	49	.....	.....	0.00	18	0.00
Australia-New Zealand	**5**	**4**	**14**	**11**	— 21.4	**0.01**	**0.01**	**117**	**0.00**
World, Undistributed	.....	.....	.....	.....	.....	.....	.....	**1,044**	**0.01**
TOTAL, WORLD	**6,429,712**	**6,607,436**	**17,615,649**	**18,102,564**	+ 2.8	**100.0**	**100.0**	**108,926,505**	**100.0**

N. A.—Not Available.



Crude prices continue their steady downward trend

THE RASH of cuts in crude oil prices that took place late in 1958 continued into 1959. On January 13, The Atlantic Refining Company announced cuts in prices it pays for certain West Texas and New Mexico crudes, ranging from 7 to 15 cents per barrel.

Price cuts of 7 cents per barrel on semi-sweet, Ellenburger, and sour crudes in West Texas and New Mexico continued into early February. Among the companies announcing price reductions were Gulf Oil Corporation, major purchaser in the area, Humble, Continental, Sinclair, Phillips, The Texas Company, and Magnolia.

Crude price cuts occurred during 1958 in the Mid-Continent, Texas, the Appalachians, and were particularly severe in California. Standard Oil Company of California cut the price it pays for 14-gravity crude by 50 cents a barrel on September 30. SoCal cited displacement of about 450,000 barrels daily of heavy crude production on the West Coast since 1947 by incoming natural gas.

Average U.S. crude petroleum prices, which began 1958 at about $3.08 per barrel, dropped to $3.06 in April, and to $3.04 in July. But, instead of firming later in the year with the approach of the heating season, prices became weaker even though crude stocks had improved considerably. Crude prices averaged $3.01 for the year.

In January, 1959, WORLD OIL estimates that crude prices probably averaged about $2.95 per barrel.

Significant changes in traditional crude pricing systems are taking place. Refiners, with profit margins squeezed, are becoming far more particular about the crudes they buy. With automatic control of gathering systems and pipe lines becoming more widespread, refiners may be finding it economical to carry smaller stocks of crude in storage, thus may be slower in making purchases.

Despite oil import curbs, it is becoming increasingly difficult to isolate domestic crude prices from world prices. Price cuts in Venezuela or the Middle East tend strongly to depress U.S. prices.

U. S. Average Prices of Crude Oil at Wells
Source: Bureau of Mines except 1959 est.

YEAR	($ Per Bbl.)	YEAR	($ Per Bbl.)	YEAR	($ Per Bbl.)
1918	1.98	1931	.65	1946	1.41
1919	2.01	1932	.87	1947	1.93
1920	3.07	1933	.67	1948	2.60
		1934	1.00	1949	2.54
1921	1.73	1935	.97	1950	2.51
1922	1.61				
1923	1.34	1936	1.09	1951	2.53
1924	1.43	1937	1.18	1952	2.53
1925	1.68	1938	1.13	1953	2.68
		1939	1.02	1954	2.78
1926	1.88	1940	1.02	1955	2.77
1927	1.30				
1928	1.17	1941	1.14	1956	2.79
1929	1.27	1942	1.19	1957	3.09
1930	1.19	1943	1.20	1958	3.01
		1944	1.21	1959Jan.	2.95
		1945	1.22		

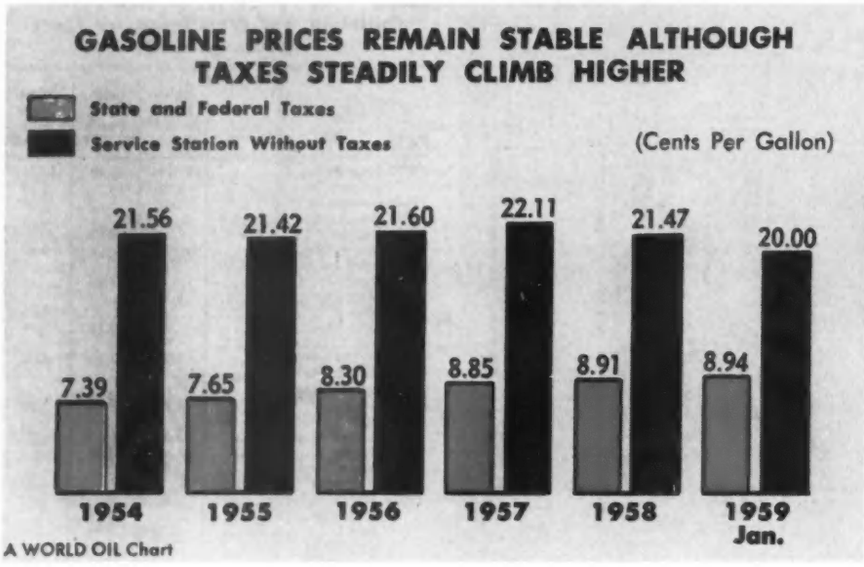
Crude Price Changes in Mid-Continent, California, and West Texas, by Years
(Dollars Per Barrel)

DATE	Okla., Kans. 36-36.9° Gravity	Calif., Long Beach 27-27.9°	West Texas Sour 30-30.9°
1937: Prior to Jan. 1	$1.10	$1.10	$0.78
January 28	1.22	....	0.88
1938: October 12	1.02	....	0.75
1939: No Changes	....	....	....
1940: February 1	....	1.03	....
1941: March 29	....	....	0.82
April 1	1.07	....	....
April 24	....	1.09	....
May 20	1.17	....	....
May 21	....	....	0.92
May 23	....	1.15	....
1942: Feb. 3; frozen at Oct. 1, 1941 level	1.17	1.15	0.92
1943 1944: 1945: No Changes; prices frozen	....	....	....
1946: April 1: OPA Raise	1.27	1.25	1.02
July 25: Oil Prices decontrolled	1.52	....	1.27
August 1	....	1.50	....
November 15	1.62	....	....
November 19	....	....	1.37
1947: March 10	1.87	....	1.62
March 19	....	1.75	....
July 1	....	1.95	....
October 15	2.07	....	....
October 16	....	....	1.82
December 6	2.57	....	2.32
December 27	....	2.45	....
1948: No Change	....	....	....
1949: June 1	....	2.37	....
1950: December 12	....	2.41	....
1951: Frozen at Jan. 25 level	2.57	2.41	2.32
1952: No Changes; frozen	....	....	....
1953: Feb. 16: decontrolled	....	2.76	....
June 15	2.82	....	2.57
1954: No Change	....	....	....
1955: No Change	....	....	....
1956: November 21	....	2.92	....
1957: January 3	3.07	....	2.82
January 17	....	3.17	....
1958: June 24	....	3.06	....
October 3	{2.93 {3.00	....	....

Changes in Prices of Bradford, Pennsylvania, Crude, by Years
(Dollars Per Barrel)

Date	Price	Date	Price	Date	Price
1937: Before Jan. 1	$2.15	[3]1943:		[6]1951:	
Feb. 24	2.67	[3]1944:		[6]1952:	
June 7	2.82	[3]1945:		1953:	
Sept. 1	2.60			Feb. 16	4.40
Oct. 12	2.35	1946:		Aug. 1	4.55
Dec. 1	2.20	[4]April 1	3.10	Sept. 21	4.05
		[5]Aug. 1	3.35		
1938:		Sept. 1	3.41	1954:	
Mar. 7	2.05	Dec. 9	3.55	Jan. 1	3.76
June 13	1.80			May 20	3.26
Sept. 1	1.68	1947:		Sept. 1	3.23
		Jan. 1	3.65	Dec. 1	3.35
1939:		Mar. 1	3.81		
Jan. 21	1.80	April 1	3.91	1955:	
Feb. 1	1.88	May 16	4.05	Jan. 21	3.50
Mar. 6	2.00	July 1	4.30	July 11	3.60
Oct. 6	2.25	Sept. 1	4.50	Nov. 1	3.75
Nov. 1	2.40	Dec. 1	5.00	Dec. 1	3.85
Dec. 1	2.50				
		1948:		1956:	
1940:		Dec. 11	4.50	Feb. 6	4.00
Jan 1	2.75			Mar. 16	4.20
May 22	2.50	1949:		May 16	4.45
June 18	2.25	Jan. 21	4.00	July 16	4.57
July 12	2.00	Mar. 11	3.75	Aug. 16	4.68
Aug. 18	1.85	April 1	3.55		
Nov. 12	2.00	April 13	3.40	1957:	
Dec. 17	2.15	May 11	3.27	Jan. 16	4.88
		June 15	3.40	July 26	4.65
1941:		Dec. 12	3.54		
Jan. 27	2.30			1958:	
April 23	2.40	1950:		Feb. 3	4.40
May 20	2.55	May 1	3.65	Apr. 16	4.15
June 18	2.75	June 21	3.75	June 18	3.90
Aug. 14	2.98	July 19	3.89	Dec. 22	4.05
Aug. 23	2.75	Aug. 25	4.00		
		Oct. 9	4.10		
1942:		Dec. 9	4.25		
[1]Feb. 3	2.75				
[2]Mar. 26	3.00				

[1] Frozen at Oct. 1, 1941 level. [2] No change; price frozen. [3] Penn. grade raise granted. [4] Raise granted by OPA. [5] Oil prices decontrolled July 25, 1946. [6] No change; price frozen at Jan. 25, 1951, level.



U. S. Average Prices of Gasoline in 50 Cities, by Years

Source: The Texas Co., via API.
(Cents Per Gallon)

YEAR	Dealer's Net	Service Sta. Excl. Tax	State and Local Tax	Federal Tax	Service Sta. Incl. Tax
1918	....	25.12	0.00	....	25.12
1919	....	25.41	0.06	....	25.47
1920	....	29.74	0.09	....	29.83
1921	....	26.11	0.20	....	26.31
1922	....	24.82	0.38	....	25.20
1923	....	21.06	0.91	....	21.97
1924	....	19.46	1.48	....	20.94
1925	....	20.09	2.11	....	22.20
1926	17.44	20.97	2.41	....	23.38
1927	15.00	18.29	2.80	....	21.09
1928	14.83	17.90	3.04	....	20.94
1929	14.58	17.92	3.50	....	21.42
1930	12.48	16.17	3.78	....	19.95
1931	9.65	12.98	4.00	....	16.98
1932	10.08	13.30	4.13	0.50	17.93
1933	9.42	12.41	4.16	1.25	17.82
1934	9.81	13.64	4.21	1.00	18.85
1935	9.73	13.55	4.29	1.00	18.84
1936	10.21	14.10	4.35	1.00	19.45
1937	10.53	14.59	4.40	1.00	19.99
1938	10.04	14.07	4.44	1.00	19.51
1939	9.58	13.31	4.44	1.00	18.75
1940	9.08	12.75	4.41	1.25	18.41
1941	9.49	13.30	4.43	1.50	19.23
1942	10.44	14.46	4.47	1.50	20.43
1943	10.45	14.56	4.47	1.50	20.53
1944	10.49	14.62	4.47	1.50	20.59
1945	10.33	14.48	4.52	1.50	20.50
1946	10.40	14.69	4.58	1.50	20.77
1947	12.33	16.93	4.68	1.50	23.11
1948	14.55	19.54	4.84	1.50	25.88
1949	15.05	20.27	5.02	1.50	26.79
1950	15.10	20.08	5.18	1.50	26.76
1951	15.33	20.31	5.25	1.59	27.15
1952	15.27	20.24	5.32	2.00	27.56
1953	15.95	21.28	5.41	2.00	28.69
1954	16.19	21.56	5.39	2.00	28.95
1955	16.18	21.42	5.65	2.00	29.07
1956	16.33	21.60	5.80	2.50	29.90
1957	16.69	22.11	5.85	3.00	30.96
1958 Est.	16.22	21.47	5.91	3.00	30.38
1959 Jan.	14.85	20.00	5.94	3.00	28.94

Gasoline prices drop again

INTENSE U.S. marketing competition continues to produce a soft price outlook for gasoline, despite improvement in stocks during 1958. Also, the threat of increased federal and state taxes on gasoline has dimmed the outlook.

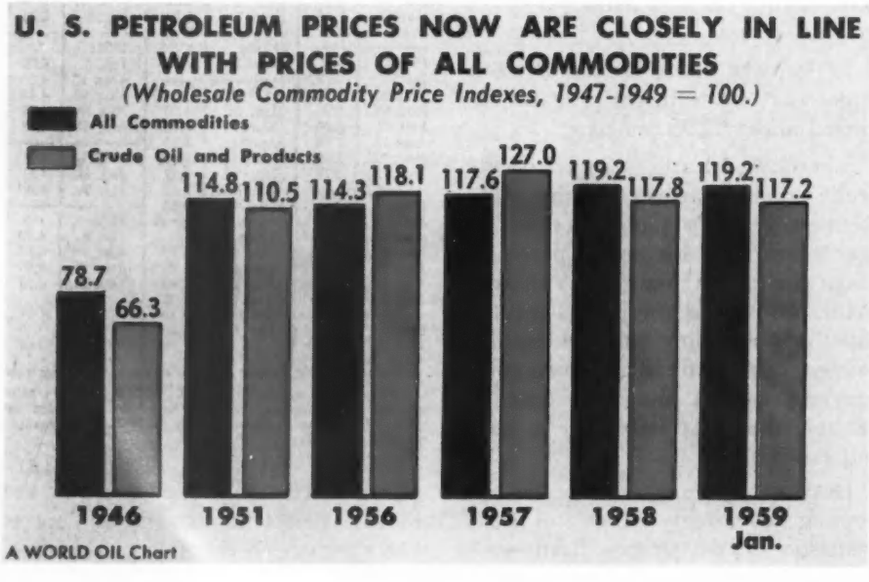
According to January, 1959, estimates, state and federal gasoline taxes were up .03 cents per gallon to 8.94 cents, continuing an upward trend that has resulted in a tax increase every year since 1950. Retail gasoline prices exclusive of taxes dropped to an estimated 20 cents in January, the lowest price level since 1948.

Oil price index drops as commodities rise

FOR THE SECOND year in a row, the wholesale price index of crude and products has remained below the index for all commodities. The estimate for crude and products was 117.2 percent of the 1947-49 level in late January, .6 of a point below the 1958 percentage of 117.8.

While the index for all oils has been declining since 1957, wholesale prices of all commodities leveled off in January at 119.2, same as the 1958 index, after a five-year upward trend.

In 1959 oil prices likely will stay closely in line with other prices.



Index of Wholesale Prices
(All Commodities vs. Crude Petroleum and Petroleum Products.)
Source: U. S. Bureau of Labor Statistics.
1947-1949 = 100

Year	All Commodities	Crude Oil & Products	Year	All Commodities	Crude Oil	Pet. Products	Crude Oil & Products
1926	65.0	98.1	1944	67.6	.....	.....	62.7
1927	62.0	71.3	1945	68.8	.....	.....	62.4
1928	62.9	70.6					
1929	61.9	69.9	1946	78.7	....	....	66.3
1930	56.1	60.4	1947	96.4	81.6	89.6	88.2
			1948	104.4	109.9	112.1	111.7
1931	47.4	38.7	1949	99.2	108.5	98.3	100.1
1932	42.1	44.5	1950	103.1	108.4	102.8	103.7
1933	42.8	40.2					
1934	48.7	49.5	1951	114.8	109.0	110.1	110.5
1935	52.0	50.3	1952	111.6	109.0	109.2	109.3
			1953	110.0	117.0	111.9	112.7
1936	52.5	56.2	1954	110.3	120.3	109.4	110.8
1937	56.1	59.3	1955	110.7	120.5	111.2	112.8
1938	51.1	54.9					
1939	50.1	51.3	1956	114.3	121.1	117.5	118.1
1940	51.1	49.1	1957	117.6	133.6	125.8	127.0
			1958	119.2	133.4	114.8	117.8
1941	56.8	56.0	1959	....	....	....	....
1942	64.2	58.7	Jan.	119.2	133.3	114.4	117.2
1943	67.0	61.4					

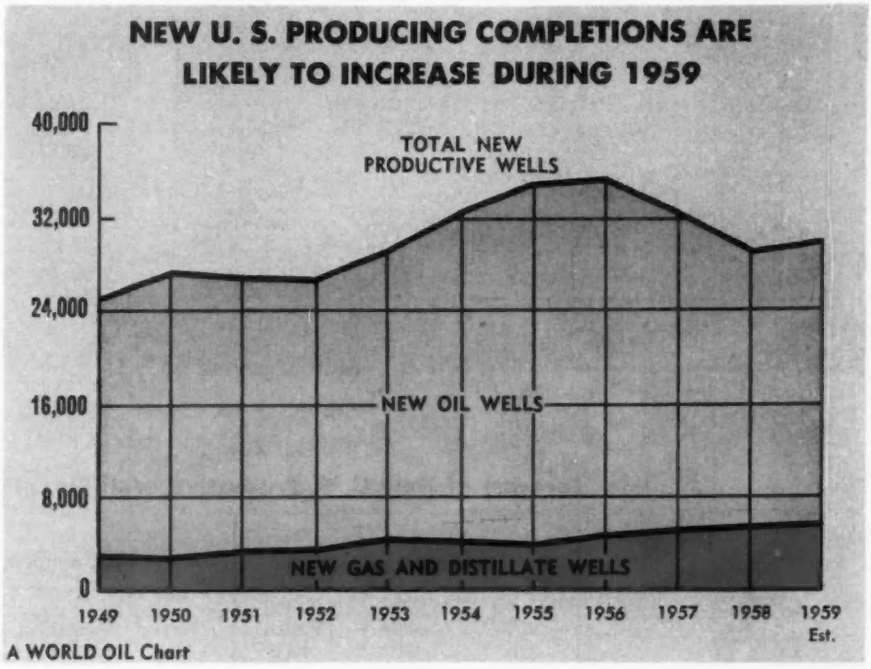
Productive completions to increase this year

THE 3.9 PERCENT increase in drilling activity forecast by WORLD OIL for the U.S. during 1959 (see Page 91) will be paralleled by an almost equal rise in the number of new producing wells, it is expected.

Anticipated drilling activity presages the completion this year of approximately 29,906 new productive wells, consisting of about 24,719 oil wells and 5,187 gas and distillate wells. In 1958, there were 28,779 productive wells completed, including 23,774 oil wells and 5,005 gas and distillate producing wells.

The expected 3.9 percent increase in the number of new producing wells in 1959 is a reversal of trend for the first time in three years. After 1957 had recorded a sharp decrease in activity resulting in 31,839 new producing wells—consisting of 27,364 oil wells and 4,475 gas and distillate producers—1958 reflected a 6.6 percent drop. The years 1957 and 1958 are the only ones since World War II in which the drilling industry has failed to register substantial increases.

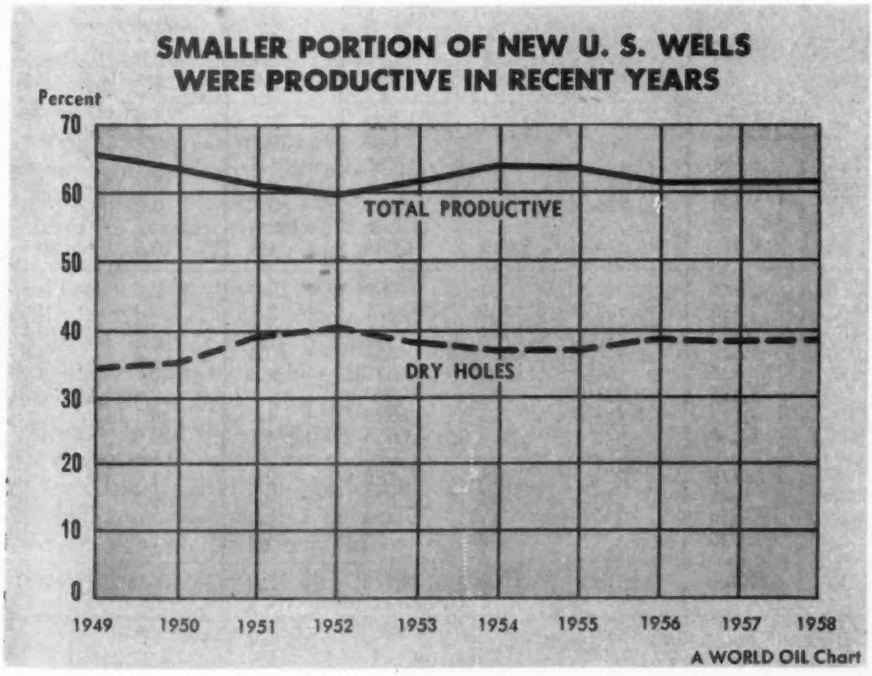
While the lack of continued increases in 1957 and 1958 were attributed to the ability to produce significantly more oil than was required to meet demand and the general consensus that the oil industry would account for relatively little growth, the outlook for 1959 has changed.



Recovery of general business activity, both in the U.S. and abroad, and colder-than-normal weather in the U.S. during the early weeks of this year are two of the factors which support the outlook for a sizable increase in oil demand during 1959 and for substantially improved conditions in the oil industry this year. Higher consumption, coupled with progress in 1958 in liquidating excessive U.S. inventories, will necessitate materially larger production rates. That, of course, will mean more income for producers—a major factor in determining drilling activity.

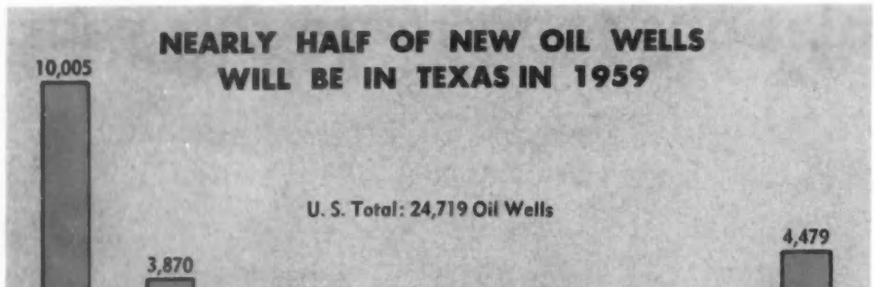
For the eighth consecutive year, the percent of the wells drilled which found oil, gas or distillate hovered at the 62 percent level. And, following the trend, most of the decrease in percent of wells drilled which discover production occurred in oil wells.

During the 1937-1941 period, 68 percent of the wells drilled produced oil. This level has declined over the years, reaching a low of 50.6 percent



Percent of U. S. Wells Drilled in Search of Production Which Were Productive

	Oil Wells	Gas and Distillate Wells	Dry Holes
1937-1941..	68.0	8.5	23.5
1942-1946..	56.1	13.1	30.8
1947.....	56.7	11.9	31.4
1948.....	59.3	8.8	31.9
1949.....	56.6	9.3	34.1
1950.....	56.4	8.2	35.4
1951.....	52.8	7.9	39.3
1952.....	51.6	8.2	40.2
1953.....	52.3	8.8	38.9
1954.....	54.6	8.2	37.2
1955.....	55.2	7.6	37.2
1956.....	53.4	7.8	38.8
1957.....	52.5	8.8	38.7
1958.....	50.6	10.7	38.7



in 1958. The declining trend has been particularly evident during the past three years (see accompanying table).

Of course, each new producing well will need to be equipped with well-heads, production lines, etc., in addition to the many others which will require additional lease equipment, such as separators, lease storage tanks and other facilities. In addition, a large number of the new oil wells will need the installation of some form of artificial lift equipment.

Again this year, Texas—by a continuing wide margin due to its greater drilling activity—and Oklahoma will lead in new producing completions.

Forecast of New U. S. Productive Well Completions in 1959

STATE or DISTRICT	1959 FORECAST			1958 ACTUAL			% DIFF.	1959 Percent of U.S.	
	New Oil Wells	New Gas and Distillate Wells	Total Productive Wells	New Oil Wells	New Gas and Distillate Wells	Total Productive Wells	Total Productive Wells	New Oil Wells	New Gas and Distillate Wells
Alabama	55	2	**57**	48	1	49	+ 16.3	0.2	.....
Arkansas	500	40	**540**	465	37	502	+ 7.6	2.0	0.7
California	890	45	**935**	879	44	923	+ 1.3	3.6	0.9
Colorado	165	75	**240**	160	75	235	+ 2.1	0.7	1.4
Illinois	1,030	55	**1,085**	981	50	1,031	+ 5.2	4.2	1.1
Indiana	315	15	**330**	310	13	323	+ 2.2	1.2	0.3
Kansas	1,695	250	**1,945**	1,641	240	1,881	+ 3.4	6.9	4.8
Kentucky	730	210	**940**	742	212	954	— 1.5	2.9	4.0
Louisiana	1,700	530	**2,230**	1,607	498	2,105	+ 5.9	6.9	10.2
North Louisiana	650	180	**830**	631	173	804	+ 3.2	2.6	3.5
South Louisiana	1,050	350	**1,400**	976	325	1,301	+ 7.6	4.3	6.7
Gulf of Mexico[1]	320	60	**380**	311	58	369	+ 3.0	1.3	1.2
Michigan	180	45	**225**	159	39	198	+ 13.6	0.7	0.8
Mississippi	185	30	**215**	157	26	183	+ 17.5	0.7	0.6
Missouri	2	5	**7**	2	4	6	+ 16.7	.....	0.1
Montana	170	10	**180**	150	7	157	+ 14.6	0.7	0.2
Nebraska	180	.....	**180**	206	.....	206	— 12.6	0.7	.....
New Mexico	1,050	585	**1,635**	1,015	559	1,574	+ 3.9	4.3	11.3
Southeast	700	35	**735**	681	35	716	+ 2.7	2.9	0.7
Northwest	350	550	**900**	334	524	858	+ 4.9	1.4	10.6
New York	295	10	**305**	288	12	300	+ 1.7	1.2	0.2
North Dakota	195	.....	**195**	246	.....	246	— 20.7	0.8	.....
Ohio	520	275	**795**	493	262	755	+ 5.3	2.1	5.3
Oklahoma	3,870	475	**4,345**	3,687	452	4,139	+ 5.0	15.7	9.2
Pennsylvania	210	340	**550**	223	359	582	— 5.5	0.9	6.6
South Dakota	2	.....	**2**	1	.....	1	+100.0	.....	.....
Texas	10,005	1,590	**11,595**	9,570	1,515	11,085	+ 4.6	40.5	30.7
Dist. 1: South Central	565	75	**640**	513	69	582	+ 10.0	2.3	1.5
Dist. 2: Middle Gulf	200	185	**385**	193	181	374	+ 2.9	0.8	3.6
Dist. 3: Upper Gulf	485	160	**645**	538	177	715	— 9.8	2.0	3.1
Dist. 4: Lower Gulf-S.W.	375	250	**625**	315	211	536	+ 16.6	1.5	4.8
Dist. 5 & 6: East	525	100	**625**	484	93	577	+ 8.3	2.1	1.9
Dist. 7-B & 9: North	3,160	275	**3,435**	3,037	263	3,300	+ 4.1	12.8	5.3
Dist. 7-C & 8: West	3,990	120	**4,110**	3,814	112	3,926	+ 4.7	16.1	2.3
Dist. 10: Panhandle	705	425	**1,130**	676	409	1,085	+ 4.1	2.9	8.2
Utah	250	25	**275**	254	28	282	— 2.5	1.0	0.5
West Virginia	180	500	**680**	180	494	674	+ 0.9	0.7	9.6
Wyoming	340	60	**400**	309	57	366	+ 9.3	1.4	1.2
Other States*	5	15	**20**	1	33	34	— 41.2	.....	0.3
Total U.S.	24,719	5,187	**29,906**	23,774	5,005	28,779	+ 3.9	100.0	100.0

[1] Gulf of Mexico wells are included in South Louisiana figures.
* Other States include Alaska, Arizona, Florida, Nevada, Tennessee and Washington.

Average depth per well 4,052 feet in 1958

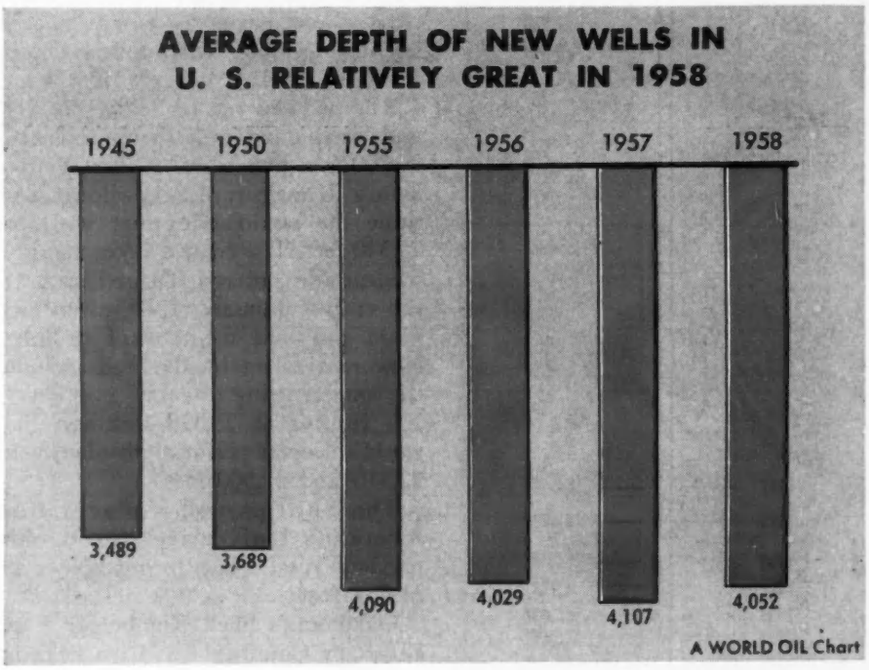
AVERAGE U.S. well depth in 1958 amounted to 4,052 feet with the drilling of 48,331 wells with combined footage of 195,829,942 feet. This amounted to a decrease of 55 feet from 1957, when the drilling of 53,783 wells resulted in a total footage of 220,863,576 feet and an average well depth of 4,107 feet.

Reason for this decline was that a larger portion of last year's wells was completed in areas with depths less than the national average. For example, an upturn in Oklahoma drilling led to the completion of 7,047 wells and to the drilling of 21,963,621 feet of hole for an average state depth of only 3,117 feet. And that amounted to almost 1,000 feet less than the national average. Too, Oklahoma's 1958 completions reflected an increase of 1,384 wells over the total for the previous year.

Despite the trend last year, 1958 was the seventh year in history in which average depths of new completions exceeded 4,000 feet.

On a numerical basis only, 29 states were divided, with 15 recording average depths per new well completion over the national average and with 14 accounting for depths below the U.S. average.

Average posted well depth figures ranged last year from Missouri's 1,010-foot average for only 16 completions to Florida's average of 9,672 feet for but 7 completions.

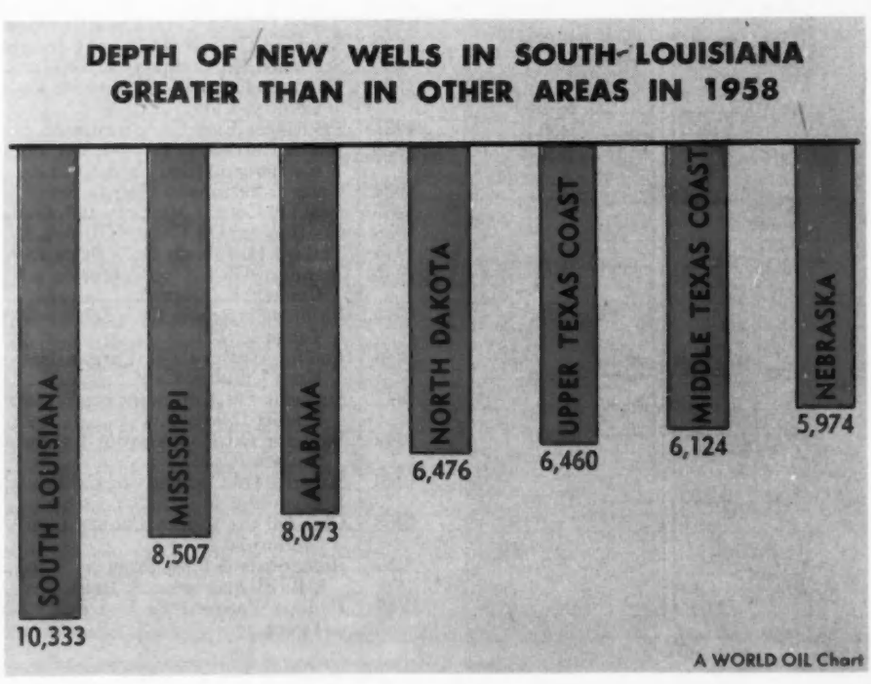


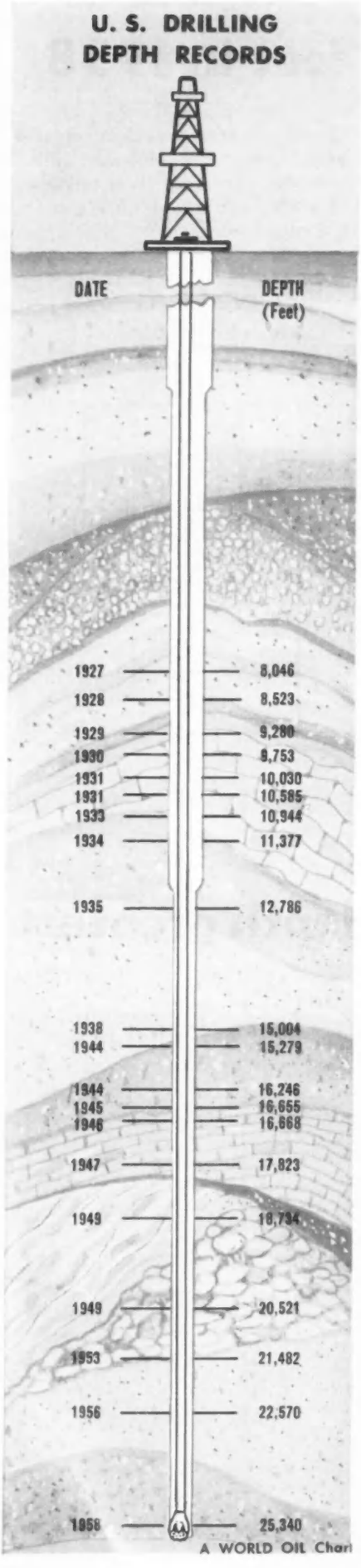
South Louisiana average well depth greatest

WELLS DRILLED in South Louisiana in 1958 continued to record significantly greater average depth than wells completed in other U.S. regions. Last year, South Louisiana completions had an average depth of 10,333 feet, as contrasted with the national average of only 4,052 feet. This was a decrease in average depth per new well completion from 1957, when the Louisiana area's depth averaged 10,480 feet.

Ranking next to South Louisiana in 1958 was Mississippi, where an average depth of 8,507 feet for the state's 428 completions was recorded. This amounted to an increase of 1,077 feet from 1957, when the Mississippi average depth amounted to 7,430 feet.

On the basis of this increase in average depth, Mississippi last year moved into the No. 2 position. In 1957 the state had surged into the No. 3 position.





Two world depth records set in the U.S. during 1958

Two of the world's deepest wells were drilled in the United States last year, increasing the number of wells drilled deeper than 20,000 feet to eight. Also, of the nation's 46 principal oil and gas areas, nine or nearly one-fifth of the total set new depth marks in 1958.

The two new record holders for dry and productive wells each replaced 20,000 foot-plus wells. Phillips Petroleum's University EE-1 wildcat became the world's deepest well at 25,340 feet. The central Pecos County wildcat was ordered plugged back at the end of January, 1959, after two years and four months of drilling. New records set by the well include the longest string of casing ever set—5½ inches at 25,328 feet and the world's deepest perforations—between 22,310 and 22,500 feet.

The Phillips well replaces Pan American's University "CS" 1, the previous West Texas record holder at 21,687 feet.

Oklahoma's Shell Rumberger 5 in Beckham County's Elk City field is now the world's second deepest well at 24,002 feet. The well bettered the state's previous depth record of 20,426 feet set by Magnolia Petroleum's Sterba-Ordovician 1 in Caddo County during 1957.

Until last year, the world's deepest well was Richardson and Bass et al's Humble-LL&E 1-L in Placquemines Parish, South Louisiana. It was drilled to 22,570 feet in 1956.

The three remaining wells drilled below 20,000 feet include California's Ohio Oil KCL "A" 72-4 in Kern County's Paloma field—21,482 feet; Wyoming's Sperior Oil Company Unit 1 in Sublette County's Pacific Creek area—20,521 feet; and Mississippi's George Basen et al Tung Oil Company of America 1, in Stone County—20,450 feet.

Where records were set. In addition to West Texas and Oklahoma, seven other U.S. states or districts set drilling depth records last year. They include: Southwest Texas, 19,503 feet (previous record, 17,966 feet in

Holders of Record as Deepest Test Drilled

(Includes Both Dry and Producing Wells)

Year	Company, Well and Location	Feet
1927	Chansler-Canfield-Midway Oil Co.'s Olinda 96, Olinda, California	8,046
1928	Texon Oil and Land Co.'s University 1-B, Big Lake, West Texas	8,523
1929	Shell Oil Co.'s Nesa 1, Long Beach, California	9,280
1930	Standard Oil Company of California's Mascot 1, Midway, California	9,753
1931	Chansler-Canfield-Midway Oil Co.'s Hobson A-2, Rincon field, Ventura County, Calif.	10,030
1931	Penn-Mex Fuel Co.'s Jardin 35, State of Vera Cruz, Mexico	10,585
1933	North Kettleman O. & G. Co.'s (later Union Oil's Lillis-Welch 1) Kettleman Hills, Calif.	10,944
1934	General Petroleum Corp.'s Berry 1, Belridge, Kern County, California	11,377
1935	Gulf Oil Corp.'s McElroy 103, Gulf-McElroy, Upton County, W. Texas	12,786
1938	Continental Oil Co.'s KCL A-2, Wasco, Kern County, California	15,004
1944	Phillips Petroleum Co.'s Price 1, Wildcat, Pecos County, West Texas	15,279
1944	Standard Oil Co. of California's KCL 20-13, South Coles Levee, Kern County, California	16,246
1945	Phillips Petroleum Co.'s Schoeps 3, Wildcat, Brazos County, Gulf Coast, Texas	16,655
1946	Pacific Western Oil Corp.'s National Royalties 1, Miramonte area, Kern County, Calif.	16,668
1947	Superior Oil Company of California's Weller 51-11, Wildcat, Caddo County, Okla.	17,823
1949	Superior Oil Company of California's Limoneria 1, Wildcat, Ventura County, Calif.	18,734
1949	Superior Oil Company of California's Unit 1, Wildcat, Sublette County, Wyoming	20,521
1953	Ohio Oil Co.'s Kern County Lands "A" 72-4, Paloma field, Kern Co., California	21,482
1956	Richardson & Bass, Freeport Sulphur & J. W. Mecom's Humble-L.L.&E. 1-L, Plaquemines, S. Louisiana	22,570
1958	Phillips Petroleum's University EE-1, Wildcat, Pecos County, West Texas	25,340

1951); Southeast New Mexico, 17,555 feet (previous record, 16,842 feet in 1956).

North Texas and Panhandle, 16,156 feet (previous record, 15,997 in 1957); Alaska, 14,221 feet; New York, 12,415 feet, active (previous record, 11,145 feet in 1953); Kentucky, 11,130 feet (previous record, 8,821 feet in 1956); Georgia, 7,613 feet (previous record, 7,487 feet in 1944).

Nearly 70 percent of the 46 U.S. oil and gas areas now have wells below 10,000 feet. Of the 32 areas reporting such depths (compared with 30 last year), five have 11,000-foot records, five have 12,000-foot records, four have 13,000-foot records, while three have 14,000 foot records.

There are two regions with depth records of 15,000 feet, two at 16,000 feet, two at 17,000 feet, one at 18,000 feet and two at 19,000 feet. Then there are the six areas with eight 20,000 foot-plus wells.

Regional Drilling Depth Records in U. S.

State or District	Total Depth	Year	WELL AND LOCATION	Formation
West Texas	**25,340**	1958	Phillips Pet's University EE-1, wildcats, Pecos County	Ellenburger
Oklahoma	**24,002**	1958	Shell's Rumberger 5, Elk City Field, Beckham County	Springer-Pennsylvanian
S. La.-Inshore	**22,570**	1956	Richardson & Bass et al's Humble LI&E 1-L, Plaquemines Parish	Miocene
California	**21,482**	1955	Ohio Oil's KCL "A" 72-4, Paloma Field, Kern County	L. Miocene
Wyoming	**20,521**	1949	Superior of Calif.'s Unit 1, Pacific Creek Area, Sublette County	U. Cretaceous
Mississippi	**20,450**	1952	George Vasen et al's Tung Oil Co. of America 1, 9-2s-11w, Stone County	Eagle Mills
Southwest Texas	**19,503**	1958	Ginther, Warren & Ginther et al's Killiam 1-A, wildcat, Webb County	Georgetown
Texas Gulf Coast	**19,056**	1955	Magnolia's West Ranch 417-A, West Ranch Field, Jackson County	Cockfield
S. La.-Offshore	**18,002**	1957	Hunt Oil's State 758-2, Coon Point Field (Ship Shoal area)	Miocene
N. Mex. S.E.	**17,555**	1958	Shell's James Ranch Unit 1, Eddy County	Ellenburger
Colorado	**17,033**	1957	Phillips Petroleum's Mannel 1, 26-1n-95w, Rio Blanco County	Weber
East Texas	**16,347**	1949	Humble Oil & Refining's R.P. McWatters 1, Freestone County	Jurassic
N. Tex. & P'handle	**16,156**	1958	Max Pray's Mills 1, Wheeler County	Bend Cong.
Alabama	**15,729**	1952	Humble Oil & Refining's Williams 1, 10-3n-2e, Clarke County	Jurassic
Florida	**15,455**	1947	Gulf Refining's State of Florida 1, Big Pine Key Area, Monroe County	L. Cretaceous
North La.	**14,967**	1947	Cotton Valley Opr. Comm. et al's A.G. Oliphant Banks 2, Webster County	Salt
North Dakota	**14,828**	1957	Amerada's N. Dakota Unit "A" 9 Beaver Lodge-Tioga Field, Williams County	Pre-Cambrian
Alaska	**14,221**	1958	Standard Oil Company of Calif., et al's Deep Creek Unit 1, 15-2s-13w, near Ninilchik, South Kenai Peninsula	Jurassic
Montana	**13,830**	1956	Phillips' Northern Pacific RR 1-A, 33-9s-22e, Carbon County	Madison
Utah	**13,766**	1949	Pacific Western Oil & Equity Oil's Unit 1, 33-21s-21e, Grand County	Pennsylvanian
N. Mex. N.W.	**13,590**	1956	Magnolia's Jicarilla 1-A, 18-23n-2w, Rio Arriba County	Granite
West Virginia	**13,331**	1955	Hope Natural Gas Co.'s Power Oil Co. 9634, Walker Dist., Wood County	Pre-Cambrian
Arkansas	**12,925**	1957	Hunt Oil's R.B. McDonald, 1-20s-21w, Columbia County	Salt
Oregon	**12,880**	1956	Sinclair's Federal-Mapleton 1, 12-16s-10w, Lane County	.....
Idaho	**12,844**	1951	Phillips & Utah Southern's Unit 1, 10-14s-30e, Oneida County	.....
New York	**12,415**	Active	New York State Nat. Gas' Woodhull Twp., Steuben County	.....
Pennsylvania	**12,343**	1951	California Co.'s Bennett 1, Davidson Twp., Sullivan County	Ordovician
Nevada	**11,543**	1952	Continental Oil & Standard Oil's Summit Springs 1, 32-20N-60E, White Pine County	Mississippian
Kentucky	**11,130**	1958	United Fuel Gas' S.B. Williams 8613, Breathitt County	Basement
Michigan	**11,012**	1948	Ohio Oil-Pure Oil's Reinhardt 1, West Branch Field, Ogemaw County	Cambro-Ord.
Washington	**11,002**	1947	Standard of Calif.'s Alderwood Comm. 1, Snohomish County	Eocene
North Carolina	**10,054**	1946	Standard of New Jersey's Cape Hatteras 1, Dare County	Granite
Virginia	**9,936**	1949	The California Co.'s Kipps Anthracite Coal Co. 1, Montgomery County	Ordovician
South Dakota	**9,348**	1951	Shell Oil Co.'s J.T. Homme 1, 13-20n-12e, Perkins County	Eocene
Nebraska	**8,875**	1957	Shell's Schneider 2, 26-15n-56w, Heidemann Fld., Kimball County	Pre-Cambrian
Kansas	**8,243**	1947	Pan American's (Stanolind) Feathers 1, 15-35s-33w, Seward County	.....
Maryland	**8,165**	1941	William Snee's Schartzer 1, Accident Dist., Garrett County	Helderburg
Ohio	**7,889**	1933	Benedum & Tree's Knowlton 1, Independence Twp., Washington County	Clinton
Illinois	**7,682**	1952	Superior Oil Co.'s H.C. Ford et al. C-17, 27-4s-14w, White County	Shakopee
Georgia	**7,613**	1958	J.R. Sealy's Lena Rebecca Sealy 3, Seminole County	L. Cretaceous
Arizona	**7,568**	....	Arizona Oil & Gas Co.'s State 1, Cochise County	Pennsylvanian
Indiana	**6,408**	1946	Continental's Cooper 1-D, Griffin Field, Gibson County	Trenton
Tennessee	**5,750**	1947	The California Co.'s E.W. Beeler 1, 4-15s-29e, Giles County	Granite
Iowa	**5,305**	1930	Oil Development Co.'s Wilson 1, Page County	Cambrian
New Jersey	**5,022**	1928	W&K Oil Co.'s Well 1, Jackson Mills Area, Ocean County	Granite
Missouri	**4,740**	1941	Strake Petroleum Co.'s T.P. Russell 1, Pemiscot County	Cambrian

Far fewer rigs are operated in U. S.

THE NUMBER of drilling rigs operated in the United States declined to a 15-year low during 1958. An average of 4,114 rigs was operated monthly in 1958, the lowest number since the days of drastic government limitations during World War II.

This was 677 fewer rigs than the 4,791 operated monthly during 1957, and 753 less than the 4,845 rigs operated in 1955.

However, there was some encouragement to be gained by the increase during the last half of the year. From a low of 3,813 rigs operating at the end of March, 1958, the number of rigs in operation rose steadily to a 12-month peak of 4,445 at the end of the year.

At one time during the year, nearly 1,000 fewer rigs were operating than at the corresponding time of 1957. This was at the end of June, when 3,970 rigs were in operation in 1958 in comparison with 4,930 in 1957.

With few exceptions, most states had fewer rigs operating at the close of 1958 than at the end of 1957. Among those which had more rigs operating at the end of 1958 were Alabama, Arkansas, Colorado, Illinois, Kentucky, Michigan, Mississippi, Nebraska, Ohio, Pennsylvania, West Virginia and Wyoming.

Texas had 49 fewer rigs working at the end of 1958 than 12 months before, although the three Gulf Coast areas, East Central, and West Texas had more rigs in operation.

U. S. Drilling Rigs in Operation, by States, End of 1957 and 1958

State or District	End of Year 1957	End of Year 1958
Alabama	**11**	**15**
Arkansas	**46**	**52**
California	**168**	**156**
Colorado	**56**	**60**
Florida	**1**	**1**
Georgia	....	**1**
Illinois	**268**	**294**
Indiana	**117**	**113**
Kansas	**515**	**338**
Kentucky	**86**	**95**
Louisiana	**381**	**356**
North Louisiana	82	65
South Louisiana	299	291
*Gulf of Mexico	69	44
Michigan	**66**	**86**
Mississippi	**44**	**75**
Missouri	....	....
Montana	**42**	**39**
Nebraska	**27**	**30**
Nevada	**1**	....
New Mexico	**175**	**154**
New York	**46**	**42**
North Dakota	**45**	**34**
Ohio	**203**	**228**
Oklahoma	**585**	**529**
Pennsylvania	**140**	**210**
South Dakota	**2**	**3**
Texas	**1,230**	**1,181**
Dist. 1: South Central	37	36
Dist. 2: Middle Gulf	36	52
Dist. 3: Upper Gulf	109	113
Dist. 4: L. Gulf-S.W.	77	85
Dist. 5: East Central	11	14
Dist. 6: Northeast	60	58
Dist. 7-B: N. Central	111	84
Dist. 7-C: W. Central	77	68
Dist. 8: West	368	387
Dist. 9: North	227	189
Dist. 10: Panhandle	117	95
Utah	**64**	**36**
Washington	**1**	**1**
West Virginia	**168**	**219**
Wyoming	**75**	**93**
Others	**6**	**4**
Total	**4,569**	**4,445**

*Gulf of Mexico included in South Louisiana.

Drilling Rigs in Use in U. S., by Years, by Months

Figures are for end of month, and include rigs drilling, rigging up, and shut down

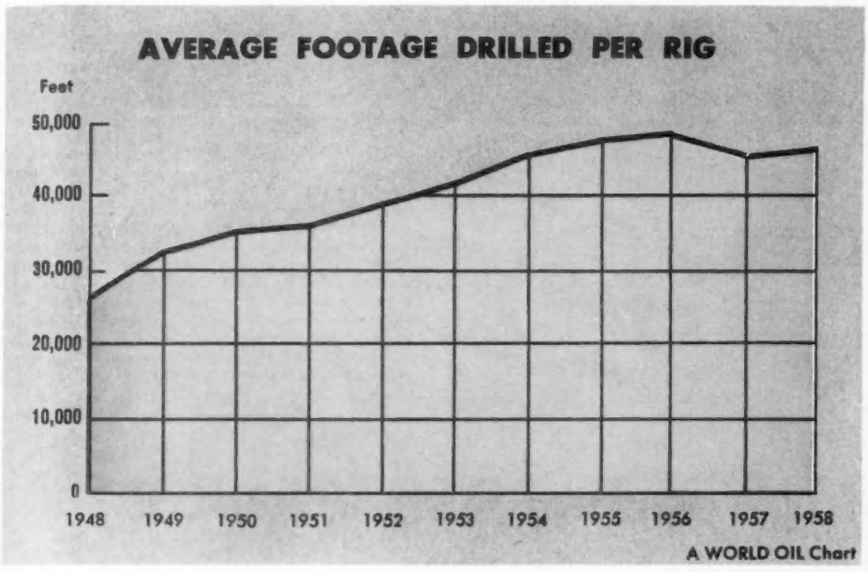
YEAR	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Avg. for Year
1938	3,968	3,928	3,973	3,971	3,582	4,830	3,737	3,869	3,742	3,876	3,676	3,434	3,799
1939	3,583	3,391	3,448	3,630	3,695	3,726	3,567	3,718	3,625	3,905	3,981	3,924	3,683
1940	3,990	4,277	4,472	4,327	4,655	4,502	4,235	4,194	3,821	3,921	4,030	3,894	4,193
1941	3,814	3,952	4,121	4,287	4,335	4,598	4,819	4,984	4,693	4,672	4,746	4,336	4,446
1942	3,816	3,067	2,979	2,859	2,868	2,905	3,179	3,007	2,953	3,094	2,962	2,797	3,041
1943	2,691	2,653	2,732	2,756	2,743	2,852	3,015	3,201	3,031	3,548	3,676	3,595	3,041
1944	3,427	3,568	3,702	3,819	3,934	4,278	4,411	4,528	4,566	4,738	4,665	4 640	4,190
1945	4,270	4,154	4,159	4,374	4,637	4,394	4,424	4,289	4,356	4,521	4,426	4,637	4,387
1946	4,337	4,229	4,212	4,405	4,399	4,124	4,235	4,201	4,474	4,410	4,551	4,654	4,353
1947	4,390	4,402	4,379	4,470	4,603	4,802	4,992	5,163	4,979	4,897	4,871	4,945	4,741
1948	4,699	4,542	4,626	4,989	5,067	5,090	5,013	5,058	5,116	5,229	5,060	4,908	4,950
1949	4,511	4,490	4,368	4,265	4,276	4,097	4,015	4,118	4,258	4,247	4,485	4,355	4,290
1950	4,180	4,169	4,114	4,224	4,518	4,760	4,712	4,804	4,633	4,773	4,649	4,665	4,517
1951	4,275	4,339	4,435	4,600	4,831	4,762	4,989	4,988	5,237	5,260	5,234	5,182	4,844
1952	5,010	5,015	5,092	5,093	5,151	5,037	4,694	4,508	4,687	4,659	4,689	4,649	4,857
1953	4,585	4,585	4,611	4,661	4,693	4,935	4,878	4,997	4,879	4,939	5,047	4,802	4,784
1954	4,597	4,743	4,732	4,709	4,716	4,656	4,616	4,439	4,467	4,581	4,685	4,680	4,635
1955	4,502	4,456	4,683	4,713	4,816	4,997	4,965	5,019	4,987	5,124	5,160	4,987	4,867
1956	4,597	4,677	4,883	4,886	5,019	5,019	4,775	4,819	4,828	4,865	4,882	4,885	4,845
1957	4,625	4,582	4,621	4,749	4,868	4,930	4,983	4,945	4,887	4,844	4,889	4,569	4,791
1958	4,153	3,936	3,813	3,959	3,946	3,970	4,082	4,201	4,118	4,338	4,410	4,445	4,114

Penetration rates increase sharply in '58

DRILLING PENETRATION rates increased sharply in the United States during 1958, more wells and footage being drilled in ratio to the number of rigs operated than in 1957.

With an average of only 4,114 rigs operated monthly during 1958, drilling activity was equal to an average of 11.7 wells and 47,601 feet of hole per rig in operation. This compared with the drilling of 11.2 wells and 46,100 feet per average rig operated during 1957. However, 1958 did not constitute a record. There were 12.1 wells and 48,583 feet of hole drilled in 1956 in ratio to the average number of rigs operated monthly.

Rates in recent years have been far above those of earlier years.



Average Wells and Footage Drilled Annually Per Rig in U. S.

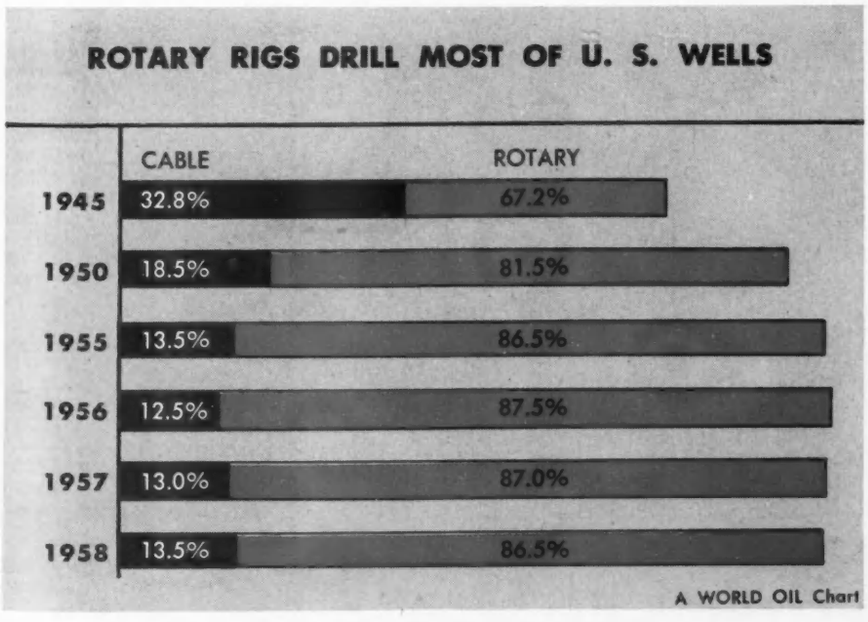
YEAR	Average Rigs Operating	Wells Drilled Per Rig	Footage Drilled Per Rig
1938.....	3,799	7.7	23,844
1939.....	3,683	7.6	23,221
1940.....	4,193	7.4	22,933
1941.....	4,446	7.3	22,345
1942.....	3,041	7.2	22,329
1943.....	3,041	6.7	20,385
1944.....	4,190	6.2	20,138
1945.....	4,387	6.1	21,195
1946.....	4,353	6.9	23,231
1947.....	4,741	7.0	23,796
1948.....	4,950	8.0	27,618
1949.....	4,290	9.1	32,312
1950.....	4,517	9.6	35,369
1951.....	4,844	9.5	36,490
1952.....	4,857	9.6	38,785
1953.....	4,784	10.3	41,478
1954.....	4,635	11.2	45,587
1955.....	4,867	11.5	46,955
1956.....	4,845	12.1	48,583
1957.....	4,791	11.2	46,100
1958.....	4,114	11.7	47,601

Fewer wells drilled by rotary method

U.S. DRILLING in 1958 declined more severely in predominately rotary rig areas than in cable tool regions. Therefore, it is estimated that cable tools accounted for the drilling of 13.5 percent of the U.S. wells as compared with 13.0 percent in 1957.

On this basis, rotary rigs are credited with the drilling of 41,806 wells during 1958. This is the smallest number of rotary rig completions since 1953. The decrease in rotary drilled wells amounted to 4,985 in comparison to 1957.

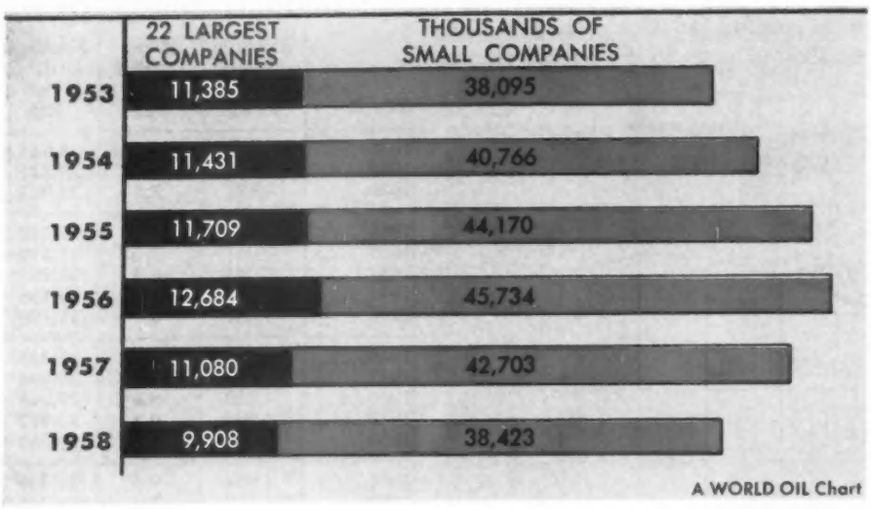
Completions by cable tools are estimated to have totaled 6,525 wells in 1958, a decrease of only 467 wells.



Estimated Number of Wells Drilled in U. S. by Rotary and Cable Tool Methods

YEAR	ROTARY Wells	ROTARY Percent	CABLE Wells	CABLE Percent
1945....	17,908	67.2	8,741	32.8
1946....	20,859	69.0	9,371	31.0
1947....	23,269	70.2	9,878	29.8
1948....	29,410	74.5	10,067	25.5
1949....	30,975	79.5	7,987	20.5
1950....	35,295	81.5	8,012	18.5
1951....	37,717	82.0	8,279	18.0
1952....	38,368	82.5	8,139	17.5
1953....	41,316	83.5	8,164	16.5
1954....	44,368	85.0	7,829	15.0
1955....	48,335	86.5	7,544	13.5
1956....	51,116	87.5	7,302	12.5
1957....	46,791	87.0	6,992	13.0
1958....	41,806	86.5	6,525	13.5

Small companies drill larger share of wells



SMALL COMPANY and individual operator participation in U.S. drilling activity increased during 1958.

Of the 48,331 wells completed in the United States during 1958, small companies and individual operators owned 38,423, or 79.5 percent, of the total. The 22 largest U.S. producing companies accounted for 9,908 of the wells drilled in the nation during 1958, or only 20.5 percent.

In 1957, a total of 54,503 new wells was drilled of which small operators accounted for 42,703 or 77.4 percent, and the 22 largest producing companies were credited with 11,800 wells, or 22.6 percent.

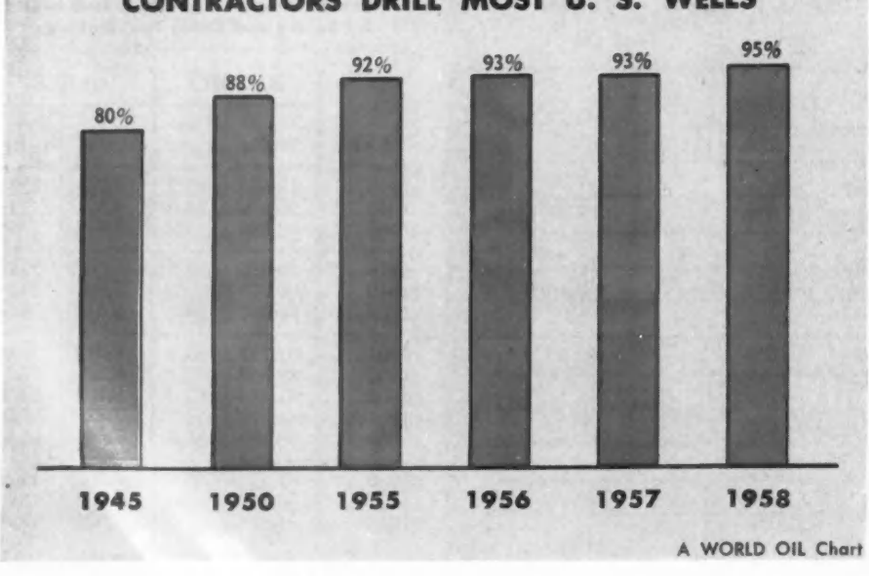
The 22 largest U.S. producing companies include the following: Amerada Petroleum, Atlantic Refining, Carter Oil, Cities Service, Continental Oil, Gulf Oil, Humble Oil & Refining, Ohio Oil, Phillips Petroleum, Pure Oil, Richfield Oil, Shell Oil, Sinclair Oil, Skelly Oil, Socony-Mobil (including Magnolia Petroleum and General Petroleum), Standard Oil of California (including The California Company and Standard of Texas), Pan American Petroleum Corp., Standard of Ohio (including Sohio Petroleum), Sun Oil, Sunray, Mid-Continent Oil, The Texas Company, Tide Water Associated Oil, and Union Oil.

Contractor drilling reaches 95% of total

ALTHOUGH in 1958 contractors drilled their smallest number of U.S. wells since 1953 and recorded their lowest total footage level since that same year, they accounted for an increase in the percent of all wells drilled.

- Contractors drilled 45,914 wells last year which accounted for 95 percent of all wells drilled. However, this total reflected a decrease of 4,104 wells from the previous year.

- Footage drilled by contractors totaled 186,038,445 feet, which was a downturn of almost 20 million feet of hole from 1957.



The peak year in contractor drilling occurred in 1956, when contractors drilled 54,329 wells with a resultant footage figure of almost 219 million feet.

Wells and Footage Drilled in U. S. by Contractors, by Years

YEAR	Indicated Work by Contractors		
	% of U.S.	Wells	Footage
1941	72	23,407	71,503,354
1942	70	15,393	47,532,137
1943	75	15,262	46,492,893
1944	78	20,113	65,815,196
1945	80	21,319	74,385,690
1946	81	24,486	81,911,096
1947	81	26,849	91,381,060
1948	82	32,371	112,101,505
1949	85	33,118	117,824,400
1950	88	38,118	140,590,324
1951	90	41,396	159,081,496
1952	91	42,321	171,226,143
1953	91	45,027	180,572,756
1954	92	48,021	194,392,465
1955	92	51,409	210,247,313
1956	93	54,329	218,909,390
1957	93	50,018	205,745,514
1958	95	45,914	186,038,445

Data on percent of work by contractors from American Association of Oilwell Drilling Contractors.

Contract prices and other drilling costs cut

AVERAGE CONTRACT price of U.S. drilling last year dropped to a 15-year low of $4.50 per foot. The peak since 1935 occurred in 1952, when the cost rose to $5.85. The low was $4 per foot—in 1940 and 1942.

In 1958, and for the first time since 1941, the average total per-foot cost declined. From a high of $13.60 in 1957, the average dropped 35 cents last year. This category had reflected an increasing trend since 1942. During the 10-year period 1948-1957, total cost per foot averaged $12.16.

The average total cost per foot includes materials and services required in addition to those provided by the drilling contractor.

By comparison, in 1935 the average contract drilling cost per foot of $5 was equivalent to almost 63 percent of the average total cost per foot of $8. By 1940, the contract price of $4 a foot equalled slightly more than 53 percent of the average total cost per foot of $7.50. Five years later, contractors received an average of $5 per foot, or 56 percent, of the total over-all cost of $9.

In 1957, the cost per foot for drilling contractors had decreased to $4.60—only slightly more than 33 percent of the average total cost per foot of $13.60 for the year.

And, because of the 35-cent decline in the average total cost per foot which occurred in 1958, the drilling contractors' proportionate share of average total cost per foot of $13.25 remained at slightly more than 33 percent.

United States Drilling Cost Trends

Year	Average Contract Cost per Foot	Average Total Cost per Foot*	Year	Average Contract Cost per Foot	Average Total Cost per Foot
1935....	$5.00	$8.00	1947...	$5.00	$10.25
1936....	4.75	7.75	1948...	4.75	10.75
1937....	4.50	7.50	1949...	4.75	10.75
1938....	4.25	7.50	1950...	5.00	11.00
1939....	4.25	7.50	1951...	5.50	11.50
1940....	4.00	7.50	1952...	5.85	12.00
1941....	4.25	7.25	1953...	5.60	12.50
1942....	4.00	7.50	1954...	5.10	12.75
1943....	4.50	8.00	1955...	4.90	13.25
1944....	4.75	8.25	1956...	4.75	13.50
1945....	5.00	9.00	1957...	4.60	13.60
1946....	5.00	9.50	1958...	4.50	13.25

* Average total cost per foot includes materials and services in addition to those provided by the contractor.
Source: American Association of Oilwell Drilling Contractors.

Major drilling equipment prices still rising

WHOLESALE PRICES of major drilling equipment continued during the past year their rising trend from 1947-1949 indices.

In 1958, all but three of the 18 major pieces of drilling equipment (see accompanying table) increased in price from the previous year. The exceptions were the rotary table, which dropped 0.12 percent from the previous year's price; the 8-9 inch diameter rock bit, down 9.05 percent; and drill collars, which declined in wholesale price by 7.02 percent from the 1957 listing.

The rotary slip jumped 9.68 percent, which was the highest percentage increase recorded in 1958 for any of these 18 separate equipment items. Increases of between 6 percent and 7 percent were reported on three of the items—alloy casing, carbon casing and tool joints. Increases of between 4 percent and 5 percent were recorded for derricks, drawworks, slush pumps, and combination hooks.

Each item except drill collars experienced a significant price increase in 1958 as compared with 1952. Alloy casing accounted for the largest increase, amounting to 65.03 percent.

Wholesale Price Indexes of Major Drilling Equipment
1947-1949 = 100

	Year 1952	Year 1957	Nov. 1958	Percent Change 1957–58	Percent Change 1952–58
Oil Well Casing-Alloy	120.4	186.9	198.7	+ 6.31	+65.03
Oil Well Casing-Carbon	125.1	179.5	190.7	+ 6.23	+52.43
Drilling Rig, Cable, Portable	123.0	148.3	152.5	+ 2.83	+23.98
Drilling Rig, Rotary, Portable	120.0	140.9	142.1	+ .85	+18.41
Derrick	123.8	170.0	176.8	+ 4.00	+42.81
Drawworks	118.2	147.3	153.2	+ 4.00	+29.61
Slush Pump	129.3	169.8	177.3	+ 4.41	+37.12
Traveling Block	119.3	139.5	143.2	+ 2.65	+20.03
Rotary Table	123.6	167.5	167.3	— .12	+35.35
Combination Hooks	113.9	144.8	150.9	+ 4.21	+32.48
Rotary Slip	116.0	138.4	151.8	+ 9.68	+30.86
Swivel	127.2	173.6	180.1	+ 3.74	+41.58
Blowout Preventer	125.5	164.0	164.1	+ 0.06	+30.75
Rock Bit 8-9 in. diameter	116.5	147.1	133.8	— 9.05	+14.84
Tool Joint	116.0	147.6	157.9	+ 6.97	+36.12
Drill Collar	114.3	115.5	107.4	— 7.02	— 6.04
Kelly (Drill Stem)	112.1	143.1	147.2	+ 2.86	+31.31
Cementing Equipment	106.2	136.3	138.7	+ 1.76	+30.60

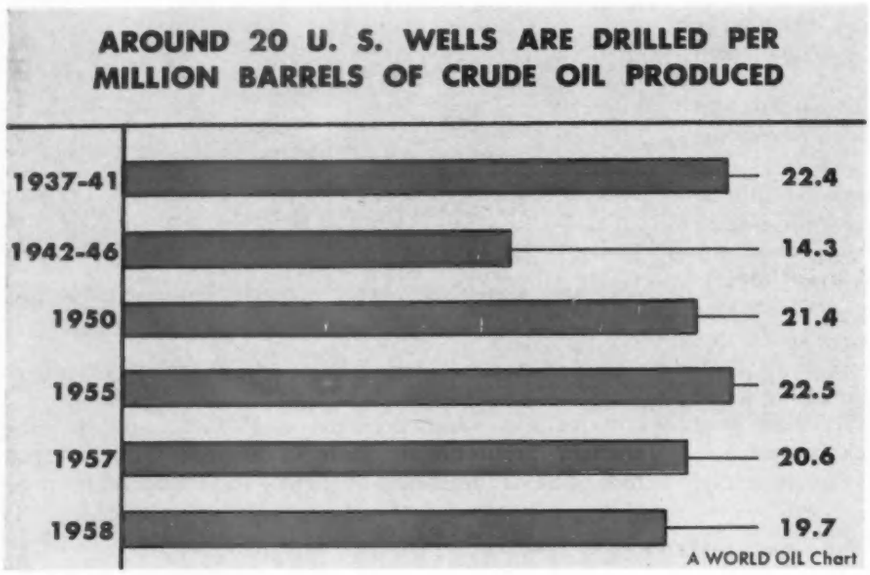
Source: U.S. Bureau of Labor Statistics.

Drilling-production ratio continues downward

FOR THE THIRD successive year, the number of wells drilled in relation to the number of barrels produced in the United States dropped downward in 1958. The general decline in drilling during the year resulted in 19.7 wells being completed for each million barrels of crude produced. This was the lowest ratio since 18.5 wells were reported in 1948.

After climbing steadily to a post-war peak of 22.5 wells in 1955, the ratio of wells drilled to production fell off slightly to 22.3 wells in 1956, then dropped more sharply in 1957 to 20.4 wells, with another decrease to 19.7 wells reported last year.

During the war years 1942-46 inclusive an average of 14.3 wells was drilled for each million barrels of crude oil produced—8.1 wells lower than the pre-war 1937-41 period. The only additional years in which the ratio was exceeded by the 1958 level were in 1947 (17.1 wells) and 1948 (18.5 wells).



Wells Drilled Per Million Barrels Produced

1937-1941	22.4	1952	19.8
1942-1946	14.3	1953	20.5
		1954	22.2
1947	17.1	1955	22.5
1948	18.5		
1949	20.5	1956	22.3
1950	21.4	1957	20.6
		1958	19.7
1951	19.8		

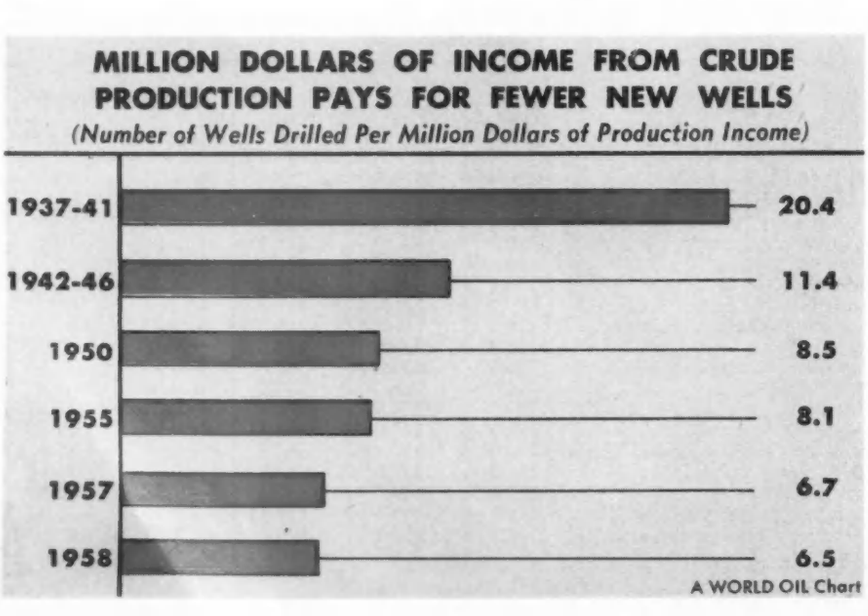
Drilling-producing income ratio drops again

AN AVERAGE OF only 6.5 wells was drilled last year for each million dollars of production income—the lowest ratio in more than 20 years.

In fact, the relationship of the number of wells drilled to income received from U.S. production has been dropping steadily downward for several decades. The 1958 ratio of wells to production income was 0.2 lower than 1957 and 1.6 lower than the 8.1 ratios reported in 1955 and 1956. The previous post-war low was recorded in 1948 when an average of 7.1 wells was drilled for each million dollars of production income.

During the 1937-41 pre-war period, the ratio was 20.4 wells for each million dollars, then dropped sharply to 11.4 wells during the war years of 1942-46.

The ratio has continued to fall off steadily during the post-war period, averaging 7.7 wells over the past 11 years. Indicating the possibility of a further decline, the 1957-1958 ratios of 6.7 and 6.5 wells are considerably lower than the post-war average.



Wells Drilled Per Million Dollars of Production Income

1937-1941	20.4	1952	7.8
1942-1946	11.4	1953	7.6
		1954	8.0
1947	8.7	1955	8.1
1948	7.1		
1949	8.1	1956	8.1
1950	8.5	1957	6.7
		1958	6.5
1951	7.8		

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1959 wildcat drilling to reverse down trend

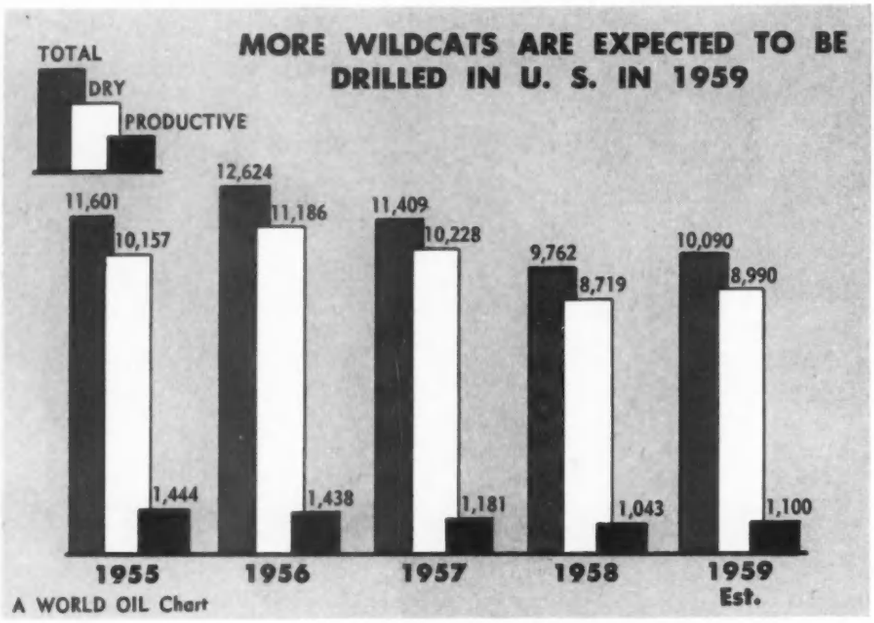
AFTER DECREASING more than 2,800 wells in a two-year down trend, U.S. wildcatting activity will regain its pre-1956 momentum this year with a 3.4 percent increase. According to WORLD OIL estimates, 10,090 wildcats will be drilled in 1959—an increase of 328 over the 9,762 wildcats drilled last year.

The predicted increase follows a sharp drop in U.S. drilling activity during 1957 and 1958. Last year, total wildcats decreased 1,621 wells or 14.2 percent below the 1957 total of 11,383 wells. In 1957 total wildcats drilled decreased 9.8 percent from the record total of 12,624 wells in 1956.

Until the decline began in 1957, U.S. wildcat activity had increased rapidly over a 10-year period, reaching its peak in 1956 when total wildcats more than doubled the 4,983 wells drilled in 1947.

Factors responsible for the expected increase in wildcat drilling this year are the excellent possibilities for higher production as a result of better demand and improved stock conditions. However, crude prices versus increased drilling costs will hold the wildcatting gain to modest levels during the next 12 months.

While the number of wildcats drilled during 1958 was 2,862 wells or 22.7 percent below the 1956 total, the number of productive wildcats decreased 308 wells or 21.4 percent, and the dry hole total dropped only 15.6 percent . The slower decline in total dry holes in relation to total wildcats drilled and productive wells illustrates the increasing difficulty in finding new crude production.



Texas leads. As the nation's leading state in wildcat activity, Texas will account for 41 percent of U.S. wildcat drilling during 1959. A total of 4,110 wells is forecast for Texas, up 141 wells or 3.6 percent over 1958. In comparison, Texas wildcat activity declined 1,056 wells or 20 percent in 1958 from the 5,025 wildcats drilled in 1957—and the 1957 total dropped 521 wells or 9.4 percent from 1956.

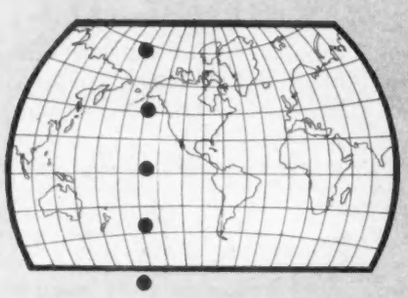
Second in wildcatting activity,

Forecast of U. S. Wildcat Tests to Be Drilled in 1959

STATE or DISTRICT	Forecast For 1959	Drilled In 1958	% Diff. '58–'59
Alabama	40	33	+21.2
Arkansas	175	164	+ 6.7
California	285	282	+ 1.1
Colorado	495	473	+ 4.6
Florida	5	7	—28.6
Illinois	620	589	+ 5.3
Indiana	255	249	+ 2.4
Kansas	1,025	992	+ 3.3
Kentucky	75	75	.....
Louisiana	645	607	+ 6.3
North Louisiana	235	227	+ 3.5
South Louisiana	410	380	+ 7.9
[1]Gulf of Mexico	40	40	.....
Michigan	150	131	+14.5
Mississippi	190	161	+18.0
Missouri	10	9	+11.1
Montana	135	119	+13.4
Nebraska	290	328	—11.6
New Mexico	285	275	+ 3.6
Southeast	185	179	+ 3.3
Northwest	100	96	+ 4.1

STATE or DISTRICT	Forecast For 1959	Drilled In 1958	% Diff. '58–'59
New York	....	....	.....
North Dakota	95	120	—20.8
Ohio	15	13	+15.4
Oklahoma	805	770	+ 4.5
Pennsylvania	25	27	— 7.4
South Dakota	10	7	+14.3
Texas	4,110	3,969	+ 3.6
Dist. 1: South Central	345	314	+ 9.9
Dist. 2: Middle Gulf	185	247	—25.1
Dist. 3: Upper Gulf	320	354	— 9.6
Dist. 4: Lower Gulf-S.W.	550	463	+18.7
Dist. 5 & 6: East	350	322	+ 8.7
Dist. 7-B & 9: North	1,460	1,402	+ 4.1
Dist. 7-C & 8: West	765	736	+ 3.9
Dist. 10: Panhandle	135	131	+ 3.0
Utah	85	87	— 2.3
West Virginia	5	6	—16.7
Wyoming	245	223	+ 9.9
Other States*	15	46	—67.4
Total United States	10,090	9,762	+ 3.4

* Other States include Alaska, Georgia, Idaho, Nevada, Oregon, Tennessee, and Washington. [1] Gulf of Mexico wells are included in South Louisiana figures.



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Kansas will increase its total 33 wells or 3.3 percent to 1,025 wildcats this year, following a 13 well decrease to 992 wildcats in 1958. Oklahoma will increase its wildcat drilling 35 wells to 805 in 1959. The 770 wildcats drilled in Oklahoma last year represented a 111 well increase over 1957.

After declining 30 wells or 5 percent in 1958 wildcat activity, Louisiana will increase its total wells 6.3 percent to a total of 645 wildcats in 1959. Illinois, the third most active wildcatting state in 1957 with 736 wells, dropped to fifth last year with a total of 589 wells. Illinois is expected to increase its total 5.3 percent to 620 wildcats in 1959.

Results of Wildcat Drilling in U. S., by Years

	PRODUCTIVE WILDCATS												DRY WILDCATS			TOTAL WILDCATS		
	OIL			DISTILLATE			GAS			TOTAL PRODUCTIVE								
YEAR	No.	Footage	Avge. Depth	No.	Footage	Avge. Depth	No.	Footage	Avge. Depth	No.	Footage	Avge. Depth	No.	Footage	Avge. Depth	No.	Footage	Avge. Depth
1937	203	831,123	4094	3	19,377	6459	33	77,389	2345	239	927,889	3882	1,943	7,173,550	3692	2,182	8,101,439	3713
1938	229	944,455	4124	4	23,657	5914	31	102,440	3305	264	1,070,552	4055	2,179	7,012,901	3218	2,443	8,083,453	3309
1939	224	782,289	3492	1	7,999	7999	33	103,450	3135	258	893,738	3464	2,488	7,764,816	3121	2,746	8,658,554	3153
1940	262	957,167	3653	2	12,792	6396	46	122,439	2662	310	1,092,398	3524	2,672	8,649,828	3237	2,982	9,742,226	3267
1941	301	1,165,966	3874	3	23,505	7835	58	177,974	3069	362	1,367,445	3777	3,047	9,651,013	3167	3,409	11,018,458	3232
1942	288	1,199,382	4165	13	121,620	9355	48	167,428	3488	349	1,488,430	4265	2,652	9,320,691	3515	3,001	10,809,121	3602
1943	276	1,232,396	4465	15	140,564	9371	56	212,814	3800	347	1,585,774	4570	2,951	10,702,429	3627	3,298	12,288,203	3726
1944	326	1,422,250	4363	32	250,228	7820	102	417,944	4097	460	2,090,422	4544	3,425	13,470,846	3933	3,885	15,561,268	4005
1945	317	1,503,763	4744	30	269,915	8997	113	486,529	4306	460	2,260,207	4913	3,486	14,504,642	4161	3,946	16,764,849	4249
1946	308	1,359,787	4415	29	264,441	9119	75	272,564	3634	412	1,896,792	4604	3,830	14,399,824	3760	4,242	16,296,616	3842
1947	436	1,999,100	4585	44	352,691	8016	96	403,038	4198	576	2,754,829	4783	4,407	17,068,382	3873	4,983	19,823,211	3978
1948	610	2,760,127	4525	70	626,026	8943	112	514,990	4598	792	3,901,143	4926	5,618	22,227,790	3957	6,410	26,128,933	4076
1949	668	3,027,759	4533	69	644,454	9340	130	626,058	4816	867	4,298,271	4958	5,914	22,044,695	3728	6,781	26,342,966	3885
1950	811	3,607,484	4448	67	572,807	8549	137	679,851	4962	1,015	4,860,142	4788	6,876	25,882,014	3764	7,891	30,742,156	3896
1951	992	4,767,425	4806	62	564,243	9101	172	937,257	5449	1,226	6,268,925	5113	8,552	34,526,359	4037	9,778	40,795,284	4172
1952	982	4,751,818	4839	111	1,038,256	9354	174	924,735	5315	1,267	6,714,809	5300	8,972	39,430,757	4395	10,239	46,145,566	4507
1953	1,062	5,322,266	5012	97	833,326	8591	259	1,326,976	5123	1,418	7,482,568	5277	9,325	41,551,971	4456	10,743	49,034,539	4564
1954	1,056	5,525,392	5232	118	997,846	8456	260	1,384,545	5325	1,434	7,907,783	5514	9,387	42,227,607	4499	10,821	50,135,390	4633
1955	1,085	5,625,626	5185	123	1,087,452	8841	236	1,163,846	4932	1,444	7,876,924	5455	10,157	47,707,546	4697	11,601	55,584,470	4791
1956	1,070	5,754,326	11296	110	1,042,679	17480	258	1,512,509	5862	1,438	8,309,514	5779	11,186	50,233,797	4491	12,624	58,543,311	4637
1957	848	4,724,116	5571	120	1,190,984	9925	213	1,235,630	5801	1,181	7,150,730	6055	10,228	46,549,595	4551	11,409	53,700,325	4707
1958	743	4,073,165	5482	80	755,645	9446	220	1,263,841	5745	1,043	6,092,651	5841	8,719	40,217,804	4613	9,762	46,310,455	4744

Results of Wildcat Drilling in U. S. in 1958, by States

	PRODUCTIVE WILDCATS												DRY WILDCATS			TOTAL WILDCATS		
	OIL			DISTILLATE			GAS			TOTAL PRODUCTIVE								
STATE or DISTRICT	No.	Footage	Avge. Depth	No.	Footage	Avge. Depth	No.	Footage	Avge. Depth	No.	Footage	Avge. Depth	No.	Footage	Avge. Depth	No.	Footage	Avge. Depth
Alabama	1	2,896	2896							1	2,896	2896	32	137,416	4294	33	140,312	4252
Arkansas	8	39,063	4883	3	25,932	8644	7	43,605	6229	18	108,600	6033	146	560,001	3836	164	668,601	4077
California	9	61,560	6840				3	10,213	3404	12	71,773	5981	270	1,322,411	4898	282	1,394,184	4944
Colorado	28	154,820	5529				16	91,720	5733	44	246,540	5603	429	2,223,424	5183	473	2,469,964	5223
Florida													7	67,707	9672	7	67,707	9672
Georgia													1	2,915	2915	1	2,915	2915
Illinois	6	11,256	1876				1	540	540	7	11,796	1685	582	1,249,872	2147	589	1,261,668	2142
Indiana	10	11,367	1137				1	1,583	1583	11	12,950	1177	238	352,655	1482	249	365,605	1468
Kansas	127	461,642	3635				24	112,187	4674	151	573,829	3800	841	3,120,400	3710	992	3,694,229	3724
Kentucky	10	16,976	1698				2	1,367	684	12	18,343	1529	63	86,455	1372	75	104,798	1397
Louisiana	33	295,523	8955	20	252,147	12607	8	85,600	10700	61	633,270	10381	546	5,014,212	9184	607	5,647,482	9304
North Louisiana	16	99,644	6228							16	99,644	6228	211	1,068,361	5063	227	1,168,005	5145
South Louisiana	17	195,879	11522	20	252,147	12607	8	85,600	10700	45	533,626	11858	335	3,945,851	11779	380	4,479,477	11788
* Gulf of Mexico	3	34,240	11413	1	10,910	10910	3	38,176	12725	7	83,326	11904	33	355,997	10788	40	439,323	10983
Michigan	8	21,592	2699				4	9,249	2312	12	30,841	2570	119	341,326	2868	131	372,167	2841
Mississippi	11	99,311	9028	1	9,559	9559	1	4,528	4528	13	113,398	8723	148	1,261,373	8523	161	1,374,771	8539
Missouri							1	555	555	1	555	555	8	11,908	1489	9	12,463	1385
Montana	9	51,692	5744	1	12,185	12185	5	20,574	4115	15	84,451	5630	104	467,973	4500	119	552,424	4642
Nebraska	34	207,336	6098							34	207,336	6098	294	1,702,809	5792	328	1,910,145	5824
New Mexico	36	225,584	6266	2	33,555	16778	17	84,549	4973	55	343,688	6249	220	1,122,261	5101	275	1,465,949	5331
Southeast	26	172,295	6627	2	33,555	16778	4	27,807	6952	32	233,657	7302	147	801,642	5453	179	1,035,299	5784
Northwest	10	53,289	5329				13	56,742	4365	23	110,031	4784	73	320,619	4392	96	430,650	4486
North Dakota	21	158,048	7526							21	158,048	7526	99	569,076	5748	120	727,124	6059
Ohio													13	49,370	3798	13	49,370	3798
Oklahoma	72	421,841	5859	11	93,443	8495	36	173,942	4832	119	689,226	5792	651	2,390,264	3672	770	3,079,490	3999
Pennsylvania							4	28,034	7009	4	28,034	7008	23	109,563	4764	27	137,597	5096
South Dakota	1	6,845	6845							1	6,845	6845	6	26,804	4467	7	33,649	4807
Tennessee													12	15,900	1325	12	15,900	1325
Texas	306	1,733,677	5666	42	328,824	7829	85	560,522	6594	433	2,623,023	6058	3,536	16,437,960	4649	3,969	19,060,983	4802
Dist. 1: S. Central	10	44,276	4428	1	5,900	5900	2	6,736	3368	13	56,912	4378	301	779,937	2591	314	836,849	2665
Dist. 2: Middle Gulf	11	63,973	5816	8	60,935	7617	11	53,870	4897	30	178,778	5959	217	1,381,333	6366	247	1,560,111	6316
Dist. 3: Upper Gulf	12	111,422	9285	6	57,695	9616	11	85,377	7762	29	254,494	8776	325	2,526,675	7774	354	2,781,169	7856
* Gulf of Mexico	1	9,915	9915				1	6,600	6600	2	16,515	8258	7	54,777	7825	9	71,292	7921
Dist. 4: L. Gulf-S.W.	26	150,003	5769	11	91,587	8326	9	62,841	6982	46	304,431	6618	417	2,290,580	5493	463	2,595,011	5605
* Gulf of Mexico													3	32,425	10808	3	32,425	10808
Dist. 5 & 6: East	11	68,024	6184	7	51,807	7401	5	37,208	7442	23	157,039	6828	299	1,461,751	4889	322	1,618,790	5027
Dist. 7-B & 9: North	112	474,689	4238	5	23,408	4682	15	65,237	4349	132	563,334	4268	1,270	4,173,547	3286	1,402	4,736,881	3379
Dist. 7-C & 8: West	109	698,439	6408	1	14,203	14203	17	131,065	7710	127	843,707	6643	609	3,150,018	5172	736	3,993,725	5426
Dist. 10: Panhandle	15	122,851	8190	3	23,289	7763	15	118,188	7879	33	264,328	8010	98	674,119	6879	131	938,447	7164
Utah													87	462,113	5312	87	462,113	5312
Washington													6	35,510	5918	6	35,510	5918
West Virginia													6	19,696	3283	6	19,696	3283
Wyoming	13	92,136	7087				4	27,873	6968	17	120,009	7059	206	964,772	4684	223	1,084,781	4864
Others							1	7,200	7200	1	7,200	7200	26	91,658	3525	27	98,858	3661
U. S. Total, 1958	743	4,073,165	5482	80	755,645	9446	220	1,263,841	5745	1,043	6,092,651	5841	8,719	40,217,804	4613	9,762	46,310,455	4744

* Gulf of Mexico wells included in their respective district totals.

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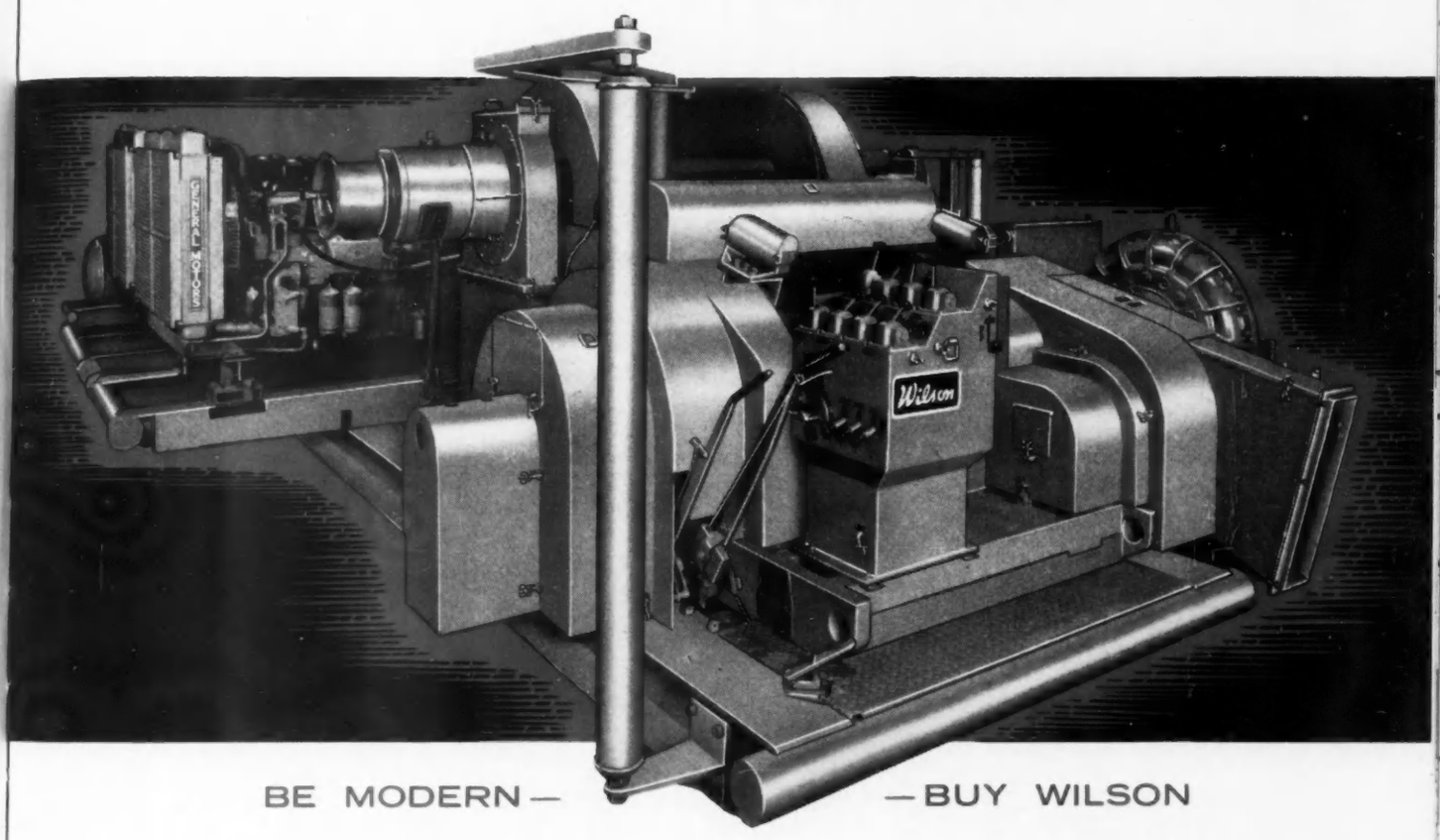

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Well ahead of any other comparative type or size of rig, the Wilson Super Mogul "42" numbers among its features: Oil Bath Drum Drive Chains Outside Frame, Instantly Accessible Clutches, plus many outstanding features. Available with either friction clutch or positive clutch transmission. Many of the features of this Rig are improvements of longstanding Wilson achievements that have been favorites of the industry through the years.

RATED DEPTH CAPACITY
7,500 Ft., Using 4½" Drill Pipe
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RATED POWER CAPACITY
Direct Drive – 600 H.P.
With Fluid Couplings – 700 H.P.
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WICHITA FALLS, TEXAS
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Wilson Rigs and Pumps Cost Less to Buy – Cost Less to Maintain – Make hole cheaper

Ratio of U. S. Wildcatting to All Drilling and Proportion of Wildcats Discovering New Fields, by Years, 1937-1958

YEAR	Total New Wells Drilled for Oil or Gas*	TOTAL WILDCATS		Dry Wildcats	PRODUCTIVE WILDCATS					
					TOTAL		OIL		GAS & DISTILLATE	
		Number	Percent of All Wells		Number	Percent of All Wildcats	Number	Percent of All Wildcats	Number	Percent of All Wildcats
1937	32,474	2,182	6.7	1,943	239	11.0	203	9.3	36	1.6
1938	27,764	2,443	8.8	2,179	264	10.8	229	9.4	35	1.4
1939	26,654	2,746	10.3	2,488	258	9.4	224	8.2	34	1.2
1940	29,161	2,982	10.2	2,672	310	10.4	262	8.8	48	1.6
1941	30,149	3,409	11.3	3,047	362	10.6	301	8.8	61	1.8
1942	19,729	3,001	15.2	2,652	349	11.6	288	9.6	61	2.0
1943	18,641	3,298	17.7	2,951	347	10.5	276	8.4	71	2.1
1944	23,733	3,885	16.4	3,425	460	11.8	326	8.4	134	3.4
1945	24,482	3,946	16.1	3,486	460	11.7	317	8.1	143	3.6
1946	28,145	4,242	15.1	3,830	412	9.7	308	7.3	104	2.5
1947	31,084	4,983	16.0	4,407	576	11.6	436	8.8	140	2.8
1948	37,448	6,410	17.1	5,618	792	12.4	610	9.5	182	2.9
1949	37,812	6,781	17.9	5,914	867	12.8	668	9.9	199	2.9
1950	42,173	7,891	18.7	6,876	1,015	12.9	811	10.3	204	2.6
1951	44,571	9,778	21.9	8,552	1,226	12.5	992	10.1	234	2.5
1952	45,275	10,239	22.6	8,972	1,267	12.4	982	9.6	285	2.8
1953	48,242	10,743	22.3	9,325	1,418	13.2	1,062	9.9	356	3.3
1954	51,419	10,821	21.0	9,387	1,434	13.3	1,056	9.8	378	3.5
1955	55,207	11,601	21.0	10,157	1,444	12.4	1,085	9.3	359	3.1
1956	57,390	12,624	22.0	11,186	1,438	11.4	1,070	8.5	368	2.9
1957	52,391	11,409	21.8	10,228	1,181	10.4	848	7.4	333	2.9
1958	48,331	9,762	20.2	8,719	1,043	10.7	743	7.6	300	3.1

* Not including service wells.

Ratio of U. S. Wildcatting to All Drilling and Proportion of Wildcats Discovering New Fields, by States, 1937-1958

STATE or DISTRICT	TWENTY-ONE YEARS, 1937-1957						YEAR, 1958					
		WILDCATS						WILDCATS				
		TOTAL			PRODUCTIVE			TOTAL			PRODUCTIVE	
	Total New Wells Drilled for Oil or Gas†	Number	Percent of All Wells	Dry	Number	Percent of All Wildcats	Total New Wells Drilled for Oil or Gas	Number	Percent of All Wells	Dry	Number	Percent of All Wildcats
Alabama	795	499	62.8	489	10	2.0	85	33	38.8	32	1	3.0
Arkansas	8,447	1,833	21.7	1,682	151	8.2	852	164	19.2	146	18	11.0
California	39,700	5,669	14.3	5,348	321	5.7	1,367	282	20.6	270	12	4.3
Colorado	7,427	3,649	49.1	3,325	324	8.9	850	473	55.6	429	44	9.3
Florida	282	263	93.3	261	2	0.8	7	7	100.0	7	.....	.....
Georgia	77	77	100.0	77	.....	.....	1	1	100.0	1	.....	.....
Illinois	54,531	11,761	21.6	11,178	583	5.0	2,302	589	25.6	582	7	1.2
Indiana	14,967	4,334	29.0	3,997	337	7.8	882	249	28.2	238	11	4.4
Kansas	61,523	12,546	20.4	10,618	1,928	15.4	3,759	992	26.4	841	151	15.2
Kentucky	24,417	2,361	9.7	2,079	282	11.9	1,812	75	4.1	63	12	16.0
Louisiana	43,385	6,356	14.7	5,456	900	14.2	3,508	607	17.3	546	61	10.0
North Louisiana	21,720	2,996	13.8	2,759	237	7.9	1,389	227	16.3	211	16	7.0
South Louisiana	21,665	3,360	15.5	2,697	663	19.7	2,119	380	17.9	335	45	11.8
Michigan	16,042	5,205	32.4	4,842	363	7.0	392	131	33.4	119	12	9.2
Mississippi	6,058	2,421	40.0	2,282	139	5.7	428	161	37.6	148	13	8.1
Missouri	1,014	303	29.9	299	4	1.3	16	9	56.2	8	1	11.6
Montana	6,070	1,234	20.3	1,121	113	9.2	306	119	38.9	104	15	12.4
Nebraska	4,317	2,143	49.6	1,928	215	10.0	697	328	47.1	294	34	10.2
Nevada	49	45	91.8	44	1	2.2	.....	.....	.....	.....	.....	.....
New Mexico	17,497	2,313	13.2	1,837	476	20.6	1,970	275	14.0	220	55	20.0
New York	14,655	156	1.1	142	14	9.0	540	.....	.....	.....	.....	.....
North Dakota	1,540	551	35.8	496	55	10.0	408	120	29.4	99	21	17.5
Ohio	23,142	497	2.1	444	53	10.7	988	13	1.3	13	.....	.....
Oklahoma	84,230	10,544	12.5	8,816	1,728	16.4	7,047	770	10.9	651	119	15.4
Pennsylvania	34,899	205	0.6	158	47	22.9	793	27	3.4	23	4	14.8
South Dakota	165	157	5.2	156	1	0.6	7	7	100.0	6	1	14.3
Tennessee	712	409	57.4	388	21	5.1	30	12	40.0	12	.....	.....
Texas	273,148	56,660	20.7	49,084	7,576	13.4	17,283	3,969	23.0	3,536	433	10.9
Dist. 1: South Central	12,936	4,524	35.0	4,229	295	6.5	988	314	31.8	301	13	4.1
Dist. 2: Middle Gulf	[1]	[1]	.....	[1]	[1]	.....	699	247	35.3	217	30	12.1
Dist. 3: Upper Gulf	25,967	5,316	20.5	4,661	655	12.3	1,295	354	27.3	325	29	8.2
Dist. 4: L. Gulf-S.W.	43,207	10,945	25.3	9,382	1,463	13.4	1,128	463	41.0	417	46	9.9
Dist. 5: East Central	[2]	[2]	.....	[2]	[2]	.....	194	111	57.2	105	6	5.4
Dist. 6: Northeast	21,296	4,028	18.9	3,765	263	6.5	839	211	25.1	194	17	8.1
Dist. 7-B: N. Central	[3]	[3]	.....	[3]	[3]	.....	2,132	758	35.6	669	89	11.7
Dist. 7-C: W. Central	[4]	[4]	.....	[4]	[4]	.....	748	214	28.6	177	37	17.3
Dist. 8: West	67,997	8,960	13.2	7,457	1,503	16.8	4,212	522	12.4	432	90	17.2
Dist. 9: North	86,619	22,223	25.7	18,969	3,254	14.6	3,742	644	17.2	601	43	6.7
Dist. 10: Panhandle	15,126	664	4.4	521	143	21.5	1,306	131	10.0	98	33	25.2
Utah	937	562	60.0	496	66	11.7	395	87	22.0	87	.....	.....
Virginia	239	36	15.1	27	9	25.0	.....	.....	.....	.....	.....	.....
Washington	58	57	98.3	57	.....	.....	7	6	85.7	6	.....	.....
West Virginia	15,445	217	1.4	136	81	37.3	836	6	0.7	6	.....	.....
Wyoming	9,307	2,124	22.8	1,816	308	14.5	711	223	31.4	206	17	7.6
*Others	293	190	64.8	181	9	4.7	52	27	51.9	26	1	3.7
Total U.S.	765,368	135,377	17.7	119,260	16,117	11.9	48,331	9,762	20.2	8,719	1,043	10.7

[1] Dist. 2 included with Dist. 4. [2] Dist. 5 included with Dist. 6. [3] Dist. 7-B included with Dist. 9. [4] Dist. 7-C included with Dist. 8.
† Does not include service wells. * Includes rest of states.

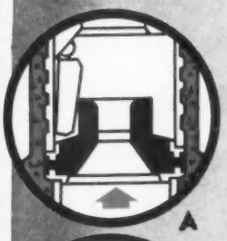
LARKIN FILRITE CEMENTING EQUIPMENT

For automatically filling the casing from the bottom while casing is being run.

The prime functions of Larkin Filrite Cementing Equipment are:

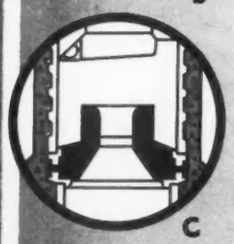
1. To eliminate the "piston-effect" of pressure surges which occur when closed-end casing is being lowered. This reduces the hazard of breaking down weaker formations.

2. To speed up the casing run by eliminating time-consuming surface fill-up of the casing. Uninterrupted lowering of the casing reduces the possibility of casing becoming stuck before reaching bottom.



Circle A, a view 90° from that of the large illustration, shows the Filrite valve in running-in position. The resilient diaphragm valve remains closed until the differential fluid pressure across it overcomes its inherent resistance to open.

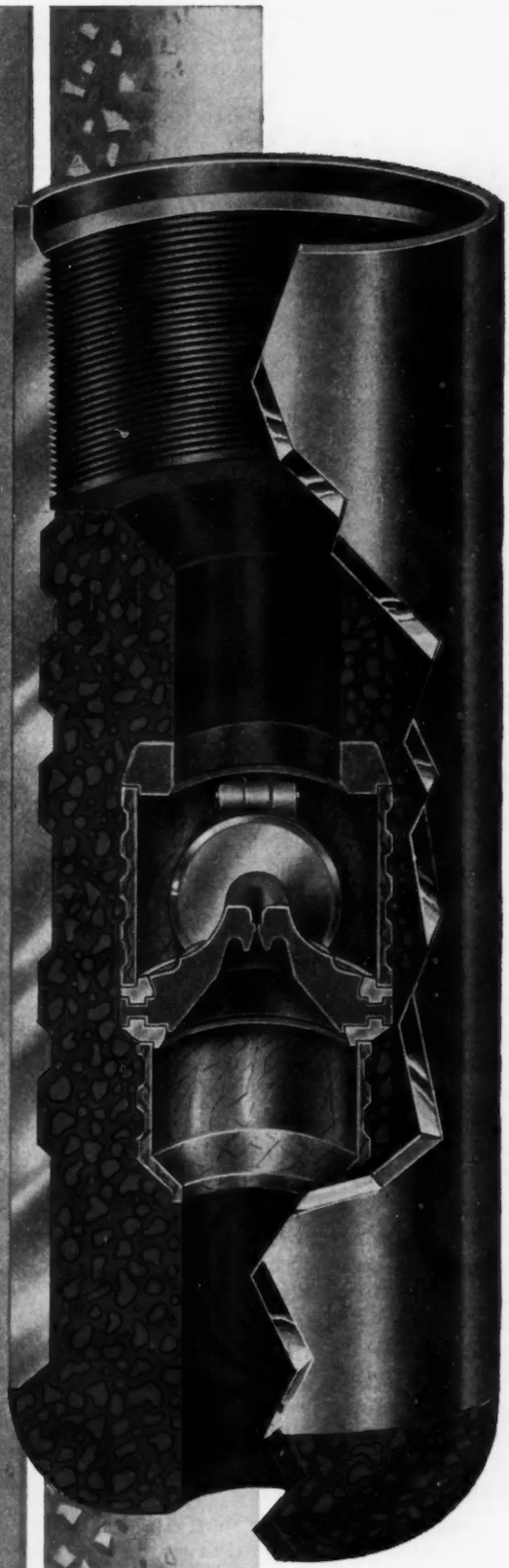
Circle B shows the rubber diaphragm inverted by pump pressure as the well is being cemented. Filrite is full opening and will allow passage of a bridging to actuate other equipment which might be installed on the casing beneath a Filrite Collar.



Circle C shows the spring-loaded flapper valve in closed position after being released by inversion of the diaphragm. The flapper valve in the Larkin Filrite equipment is very strong and has no depth limitations.

Available but not illustrated:

Filrite Collar, Filrite Geyser Shoe and Filrite Geyser Collar



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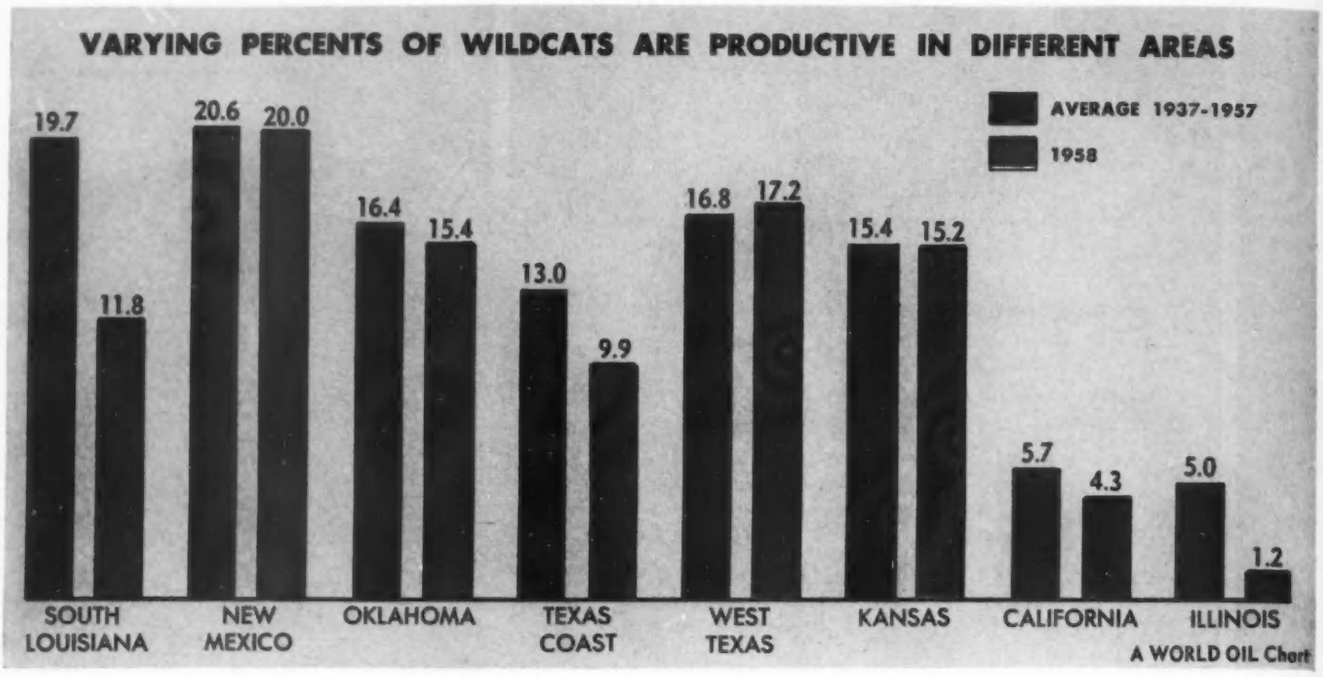


10.7 percent of U.S. wildcats produce in 1958

ONLY 1,043 or 10.7 percent of the 9,762 wildcats drilled in the United States during 1958 found oil, gas or distillate production.

In comparison, 10.4 percent of the wildcats drilled were productive in 1957 and 11.4 percent in 1956. The success percentages during the past two years have been the lowest since 1946 when 9.6 percent of the wildcats found production. The percentages for 1957 and 1958 also are well under the 21-year average of 11.9 percent.

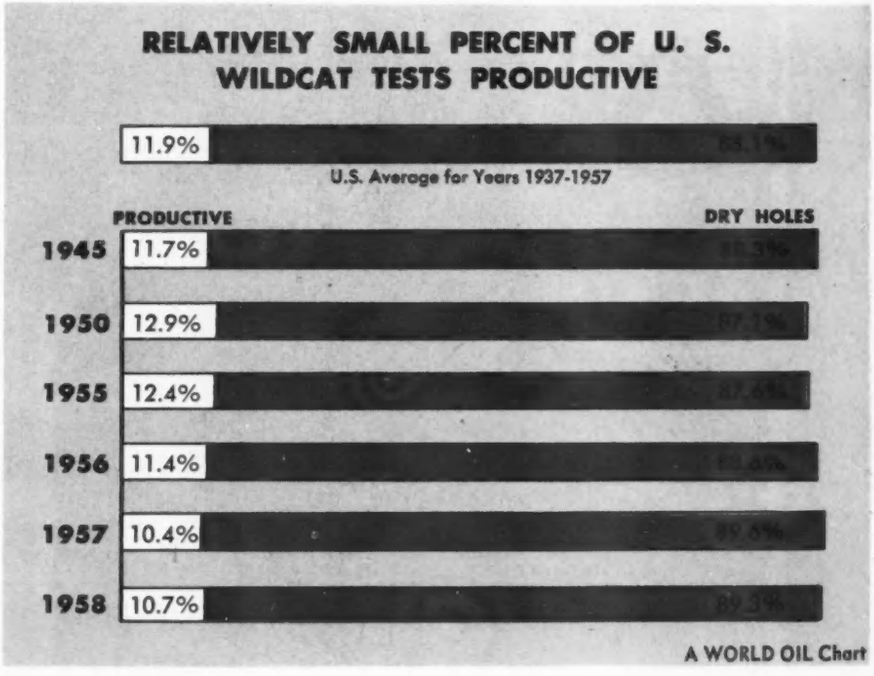
Two areas reported a 20 percent or better success record last year. The most successful area in the nation was the Texas Panhandle where 33 wells or 25.2 percent of the 131 wildcats drilled were successful. New Mexico reported 55 successes out of 275 wildcats drilled for a 20 percent success record.

During the past 21 years, four states have maintained a better than 20 percent success average in wildcatting—West Virginia with 37.3 percent; Pennsylvania, 22.9 percent; Texas Panhandle, 21.5 percent; and New Mexico; 20.6 percent.

Most active areas. Of the eight most active areas in the United States during 1958 New Mexico recorded the most outstanding percentage of successes (20 percent), followed by West Texas, which reported a 17.2 percent success record. Oklahoma was third in successes with 15.4 percent.

Fourth in success records was Kansas with 15.2 percent. Then came South Louisiana 11.8 percent; North Central Texas 11.7 percent; North Texas 6.7 percent. Illinois reported the exceptionally low success record of seven producers or 1.2 percent of the 2,302 wildcats drilled.

Texas, the perennial leader in wildcatting, accounted for 17,283 wells or 35.8 percent of all the wildcats drilled in the U.S. last year. Despite the large number of wildcats drilled, the state reported a 10.9 success percentage, slightly above the national average.



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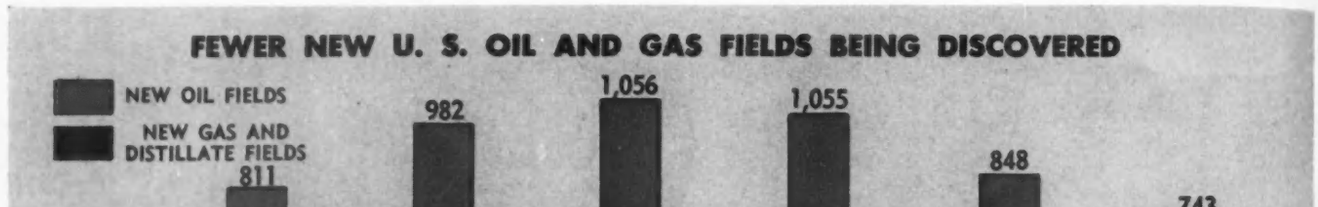


New field discoveries at eight-year low

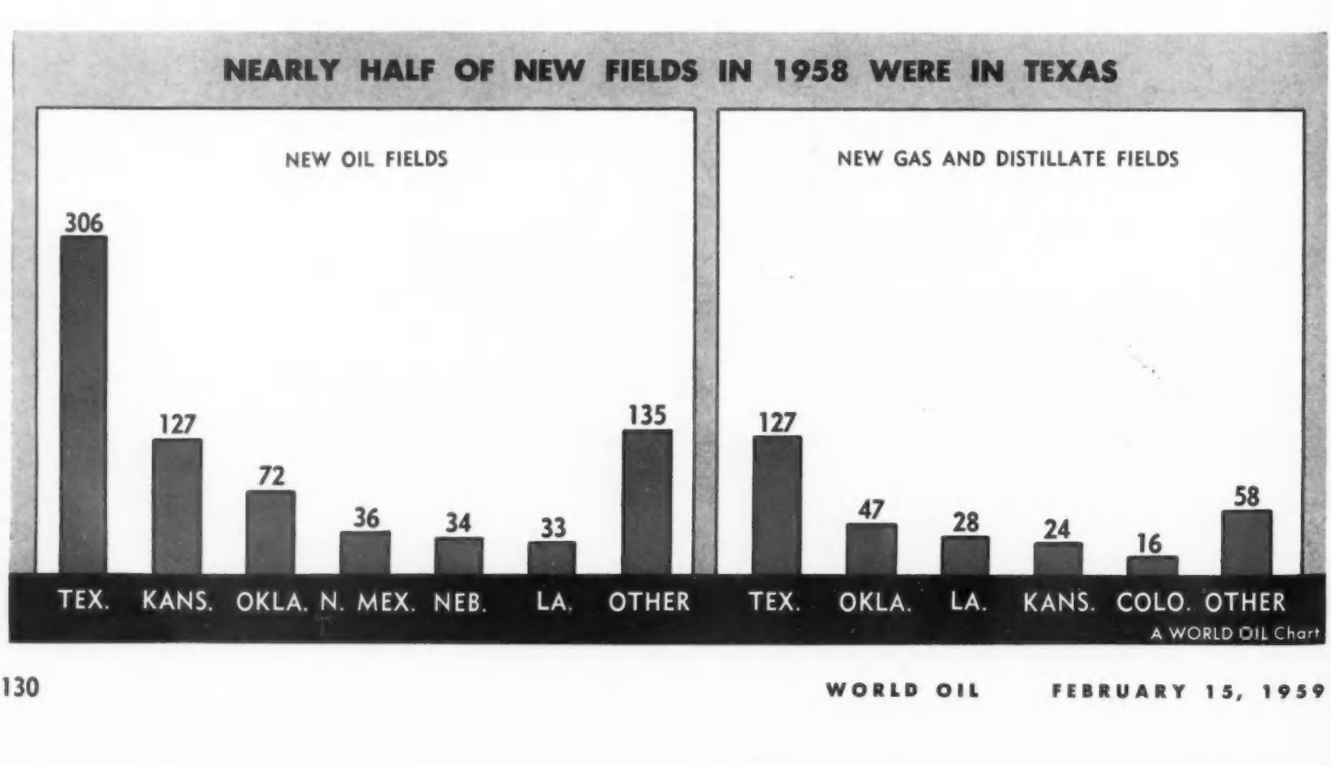
FOLLOWING A three-year downward trend after reaching an all-time high in 1955, new field discoveries dropped to an eight-year low last year when 1,043 new oil, gas or distillate fields were found. While this total was 138 fields below 1957 and 401 below the record year of 1955, it still was more than double the 412 new fields found in 1946.

The 11.7 percent decline in 1958 discoveries compared with decreases of 17.9 percent in 1957 and 0.4 percent in 1956. The increase of 0.7 percent in 1955 marked the last of a rising trend which had existed since the end of World War II. For the past nine years, more than 1,000 new fields have been found annually.

As in 1957, the general decrease last year extended to all three types of fields—oil, gas and distillate. The 743 new oil fields discovered in 1958 amounted to a decrease of 105 from the 1957 total of 848, and 327 less than the 1956 total. New gas and distillate fields numbered 300 last year, 33 less than the 333 total of 1957.

Texas, with 132 discoveries in the North district and 127 in the West district, again led the nation in new fields found with 433. This compares with 535 in 1957 and 685 in 1956. Of the 1958 total, 306 found new oil fields and 85 discovered new gas and distillate fields.

Kansas was second in new field discoveries with 151 and Oklahoma was third with 119.



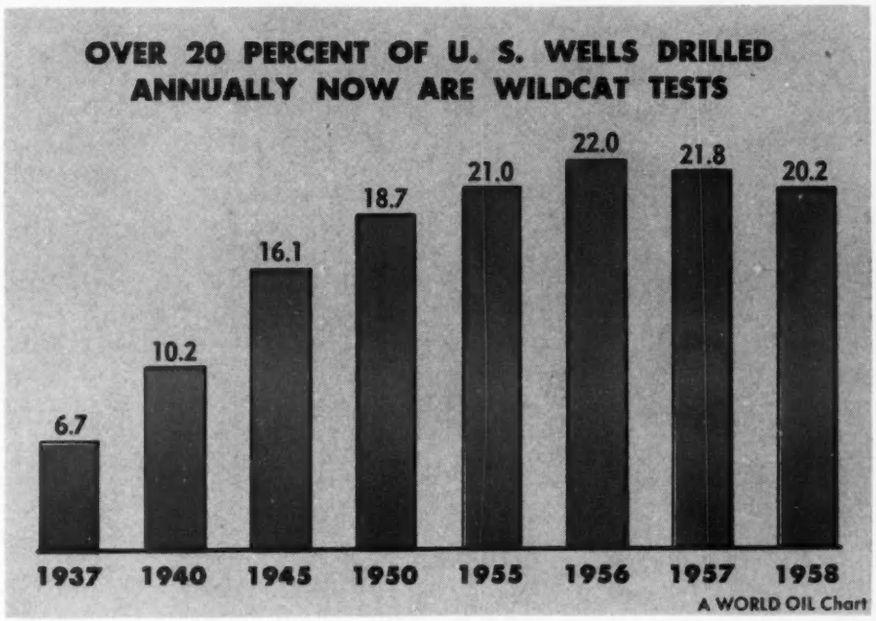
20.2% of wells drilled are wildcats

LESS WILDCATS were drilled in proportion to total wells during 1958 than in any year since 1950. Out of a total of 48,331 wells drilled, 9,762 or 20.2 percent were wildcats.

The 1958 record compares with 11,409 wildcats or 21.8 percent of the total wells drilled in 1957 and 12,624 wildcats or 22 percent of the 55,207 wells drilled during the record year of 1959.

Despite this two-year downward trend, the portion of U.S. wells drilled on exploratory sites is still considerably higher than earlier years. Less than 10 percent of total U.S. completions were wildcats prior to 1939. The ratio to all wells drilled rose to 10 percent in 1939 and 1940, then climbed to more than 17 percent in 1943.

After holding firm at a level slightly below the 1943 ratio for several years, the ratio rose to 17.9 percent in 1949 and 18.7 percent in 1950. Each succeeding year since that time has seen a 20 or above percent ratio.



During the 21-year period between 1937 and 1958, the ratio of wildcats to all wells drilled has averaged 17.4 percent. Of the major oil areas in the United States (12,000 or more wells drilled in the 21-year period), the South Central district of Texas leads the nation in wildcat ratio to all wells drilled with a 21-year average of 35 percent.

Kansas wildcat ratio is highest

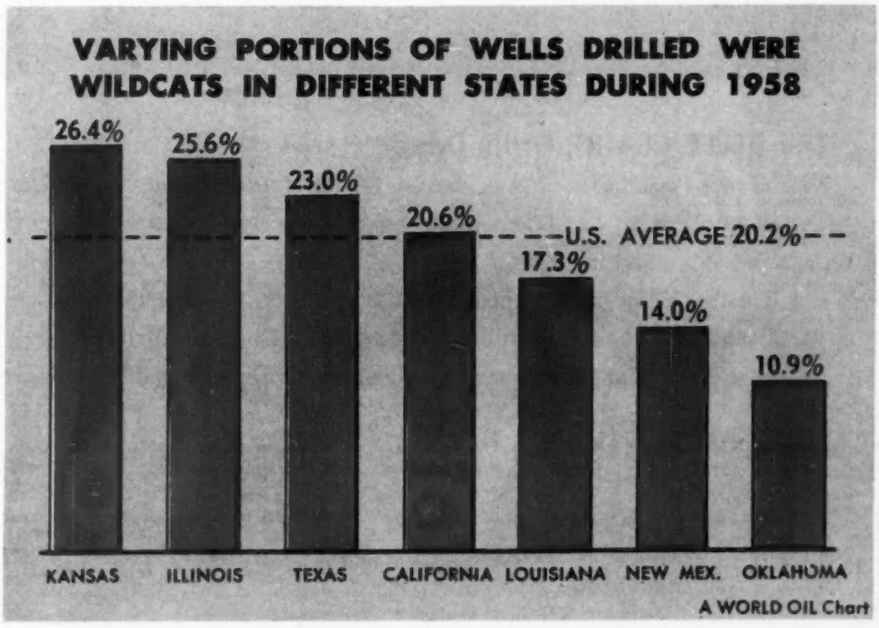
FOLLOWING THE trend of recent years, Kansas and Illinois again led the more active drilling states in proportion of wildcats to total wells drilled last year.

Kansas took the first place position away from Illinois with 26.4 percent of its total drilling credited to exploratory efforts, compared with 24.4 percent in 1957. Illinois' ratio was 25.6 percent in 1958, compared with 28.4 percent the previous year.

Texas drilled 3,969 wildcats last year, out of a total of 17,283 wells for a 23 percent ratio. The ratio of wildcatting to total wells varied considerably in the different districts of the state.

The highest Texas wildcat ratio to all wells drilled was 57.2 percent in the East Central district (last year this area reported 73.9 percent). In the Lower Gulf district 41 percent of all wells were wildcats; in the North Central district, 35.6 percent; in the Middle Gulf district, 35.3 percent; in the South Central district, 31.8 percent; in the West Central district, 28.6 percent; in the Upper Gulf district, 27.3 percent; and 25.1 percent in the Northeast district.

In comparison with the national average of 17.7 percent for wildcats drilled compared with all new wells, Oklahoma (fourth in the United States in total new wells drilled) wildcats accounted for only 12.5 percent of the total in 1958.



The BELLE CLAIRE Drills Deep. Owned by the Continental Shelf Drilling Corporation, the barge *Belle Claire* is a familiar sight in the Gulf Coast country. Here it is shown sinking a deep well at Lake De Cade, Terrebonne Parish, La. When photographed, the rig had already drilled the hole to 12,000 ft, and the crew expected to go another 4,000.

The rotary line, a Bethlehem 1⅜-in. Purple Strand rope, had been in service for almost a year. Still in excellent condition after 62,000 ft of drilling, this 6x19 line easily handled the heavy pipe and other equipment. For coring, the rig used Bethlehem 6x7 with a coating of bethanized zinc to protect against rust.

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Increase in artificial lift is forecast

WORLD OIL ESTIMATES that 25,104 U.S. wells will be placed on artificial lift during 1958. In addition, expenditures for equipment to maintain existing artificially lifted wells are expected to total $84,301,000.

Continuing the high postwar trend, the total number of wells going on artificial lift in 1959 will be 1,074 wells more than last year. The increase is due to prospects that more new producing wells will be completed because of anticipated higher drilling activity. Some wells will be equipped with equipment transferred from abandoned wells, but the vast majority will require new equipment.

At the end of 1958, there were 506,397 U.S. wells on artificial lift, 11,114 more than a year ago.

Forecast by states. As the nation's leading drilling and oil producing state, Texas again is expected to have the largest number of wells to be placed on artificial lift. WORLD OIL estimates the total will be 10,417 wells, 645 more than in 1958.

Also, Texas will lead in lifting equipment maintenance expenditures with an estimated $28,552,000 during 1959, up $1,631,000 from the previous year.

While Oklahoma again will record this year the second largest number of wells to go on artificial lift in the United States, with 3,770, the state's equipment expenditures for existing artificial lift wells is estimated at $10,805,000—the third largest in the country.

Oklahoma's total number of wells to go on artificial lift reflects an upturn of 590 wells from last year's figure of 3,180 wells.

Kansas retained its No. 3 position, with an expected 1,660 wells to go on artificial lift. Maintenance expenditures in the state are expected to increase this year to $5,475,000, up $204,000 from 1958's $5,271,000.

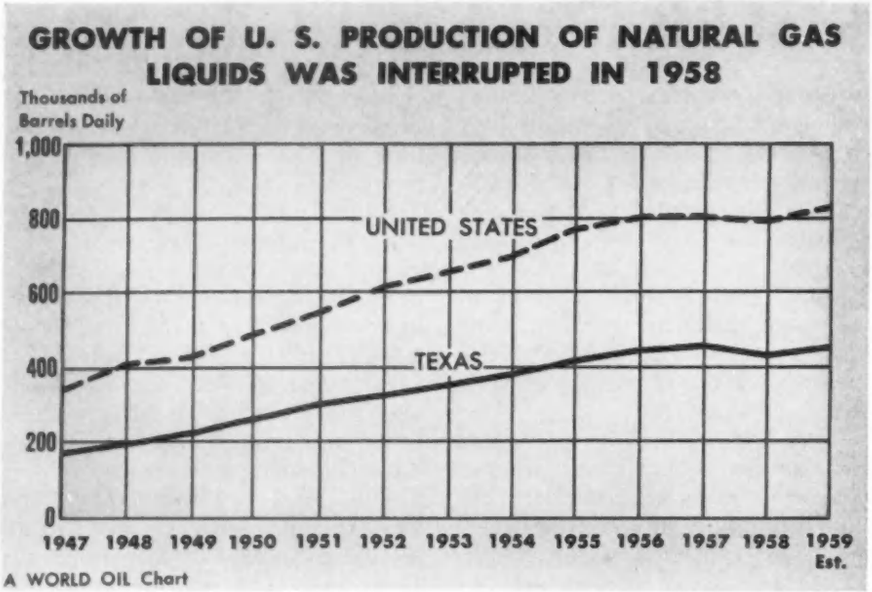
Following, in order, are New Mexico, with an estimated 1,381 wells to go on artificial lift and with maintenance expenditures expected to reach $2,259,000; Louisiana, with 1,088 wells and maintenance outlays of an estimated $2,163,000; California, with 1,080 wells and maintenance expenditure of $16,141,000—the second highest outlay in the country.

Estimate of 1959 Artificial Lifting Equipment

(Includes requirements for all types of pumping, hydraulic power, and gas lift units)

STATE or DISTRICT	Est. Wells to go on Artificial Lift in 1959	Wells Put on Pump or Lift in 1958	New Oil Wells Completed in 1958	No. Oil Wells Flowing End of 1958	Oil Wells on Artificial Lift End of 1958	Net Wells Shut in or Abandoned in 1958	Est. Maintenance Cost For All Art. Lift Wells in 1959 (Equipment only)
Alabama	**65**	**56**	**48**	**27**	**227**	**10**	**$ 29,000**
Arkansas	**512**	**479**	**465**	**232**	**5,417**	**235**	**777,000**
California	**1,080**	**1,085**	**879**	**1,290**	**35,170**	**1,671**	**16,141,000**
Colorado	**138**	**159**	**160**	**573**	**1,625**	**146**	**291,000**
Illinois	**1,021**	**963**	**981**	**321**	**38,366**	**425**	**4,665,000**
Indiana	**415**	**437**	**310**	**173**	**5,094**	**159**	**583,000**
Kansas	**1,660**	**1,613**	**1,641**	**131**	**39,133**	**946**	**5,475,000**
Kentucky	**734**	**753**	**742**	**8**	**18,982**	**9**	**2,322,000**
Louisiana	**1,088**	**1,061**	**1,607**	**8,537**	**13,176**	**109**	**2,163,000**
North Louisiana	756	736	631	1,606	10,325	21	1,541,000
South Louisiana	332	325	976	6,931	2,851	88	622,000
Michigan	**191**	**427**	**159**	**41**	**4,198**	**99**	**648,000**
Mississippi	**177**	**132**	**157**	**352**	**2,087**	**50**	**474,000**
Montana	**340**	**328**	**150**	**407**	**3,210**	**379**	**581,000**
Nebraska	**186**	**267**	**206**	**26**	**1,320**	**563**	**273,000**
New Mexico	**1,381**	**1,458**	**1,015**	**3,972**	**6,839**	**332**	**2,259,000**
New York	**295**	**288**	**288**	.....	**19,765**	**218**	**1,235,000**
North Dakota	**248**	**286**	**246**	**503**	**640**	**41**	**95,000**
Ohio	**510**	**448**	**493**	**175**	**14,850**	**298**	**1,027,000**
Oklahoma	**3,770**	**3,180**	**3,687**	**2,771**	**76,981**	**1,822**	**10,805,000**
Pennsylvania	**210**	**223**	**223**	.....	**68,050**	**1,783**	**3,885,000**
Texas	**10,417**	**9,772**	**9,570**	**47,897**	**131,781**	**3,852**	**28,552,000**
Dist. 1: South Central	637	563	513	372	7,260	210	1,304,000
Dist. 2: Middle Gulf	240	221	193	3,276	2,312	122	484,000
Dist. 3: Upper Gulf	785	821	528	4,609	8,122	538	1,465,000
Dist. 4: Lower Gulf-S.W.	595	486	315	4,927	6,925	435	1,387,000
Dist. 5 & 6: E. Cent. & N. E.	725	673	484	12,034	14,957	353	3,815,000
Dist. 7-B & 9: N. Cent. & N.	3,260	3,153	3,037	4,128	43,005	1,697	9,730,000
Dist. 7-C & 8: W. Cent. & W.	3,490	3,188	3,814	18,293	37,885	199	8,362,000
Dist. 10: Panhandle	685	667	676	258	11,316	298	2,005,000
Utah	**90**	**76**	**254**	**307**	**245**	**45**	**39,000**
West Virginia	**180**	**180**	**180**	.....	**12,740**	**155**	**834,000**
Wyoming	**390**	**355**	**309**	**467**	**6,334**	**95**	**1,123,000**
Other States†	**6**	**4**	**4**	**3**	**171**	**9**	**25,000**
Total United States	**25,104**	**24,030**	**23,774**	**68,123**	**506,397**	**13,451**	**$84,301,000**

† Alaska, Arizona, Florida, Missouri, Nevada, South Dakota, Tennessee, Virginia and Washington.



Natural gas liquids production expected to continue to rise

DESPITE A SLIGHT reduction in natural gas liquids production in the United States during 1958, it is anticipated that output will reach record proportions this year. The current year's production is expected to average 832,000 barrels per day in supplying an annual total of 303,650,000 barrels.

This estimate indicates a percentage increase from the previous year of slightly more than 4 percent. In 1958, daily average production of natural gas liquids amounted to 798,000 barrels for an annual total of 291,419,000 barrels, tantamount to a decrease of 10,000 barrels per day from the previous year. Total annual production for 1957 amounted to 294,990,000 barrels.

Trend is upward. Thus, the trend of relatively high production of natural gas liquids is continuing. For example, since 1948 the output has more than doubled. Production in 1948 amounted to an average of 401,000 barrels per day, or an annual yield of 146,721,000 barrels.

According to the Bureau of Mines, daily average production of natural gas liquids in October, 1958, was slightly more than 807,000 barrels, an increase of 0.6 percent over the previous year. Daily average production of liquefied gases at refineries was almost 148,000 barrels, or 3 percent above the previous year. Daily average production of liquefied petroleum gases at natural gasoline and cycling plants totaled slightly more than 452,000 barrels, also reflecting a 3 percent gain from the previous year.

The daily average demand for liquefied gases for fuel and chemical uses was approximately 460,000 barrels, decreasing 8 percent from October, 1957, the Bureau reported. Daily average demand for natural gasoline in October was slightly more than 257,000 barrels, down 4 percent from the same period of the previous year, and underground stocks of liquefied gases on October 31 totaled 17.2 million barrels, a decrease of almost 167,000 barrels during the month.

Because of smaller production of crude oil, the Bureau of Mines reported recently, the yearly output of natural gasoline in 1958 declined to 131,976,190 barrels, compared with 136,523,809 barrels in 1957. The 1958 value was $407 million, down $7 million from 1957. Liquefied petroleum gas production and value increased slightly.

Value increases slightly. The per-gallon value of the 1958 natural gasoline production at the plants amounted to 7.34 cents, an increase of a fraction of a cent from the 1957 per-gallon value of 7.22 cents.

The per-gallon value of last year's liquefied petroleum gas production, which amounted to 159,357,140 barrels, was up slightly from the 3.96 cents per gallon value of 1957 production, which totaled 158,452,380 barrels.

The increase in production of natural gas liquids anticipated this year parallels the expected rise in production of crude oil and an increase in demand for natural gas liquids.

Early in 1959, refinery and terminal prices were quoted as follows:

- FOB Group 3, grade 26-70, 4.5.
- FOB Breckenridge, Texas, grade 26-70, 4.

U. S. Production of Natural Gas Liquids

(Source: Bureau of Mines except Nov.-Dec., 1958, estimated. New series beginning 1941 includes cycle condensate.)

(THOUSANDS OF BARRELS)

Year	Total	Daily	Year	Total	Daily	Year	Total	Daily
Natural Gasoline			1932	36,281	99	1946	115,739	317
1918	6,727	18	1933	33,810	93	1947	132,173	362
1919	8,370	23	1934	36,556	100	1948	146,721	401
1920	9,161	25	1935	39,333	108	1949	157,086	430
1921	10,713	29	1936	42,770	117	1950	181,961	499
1922	12,044	33	1937	49,177	135	1951	204,754	561
1923	19,434	53	1938	51,347	141	1952	223,515	611
1924	22,235	61	1939	51,650	142	1953	238,579	654
1925	26,845	74	1940	55,700	152	1954	252,133	691
1926	32,455	89	**Natural Gas Liquids**			1955	281,371	771
1927	39,075	107	1941	80,855	222	1956	292,727	800
1928	43,191	118	1942	83,222	228	1957	294,990	808
1929	53,183	146	1943	87,716	240	1958	291,419	798
1930	52,631	144	1944	100,046	273	1959 Est.	303,650	832
1931	43,617	119	1945	112,004	307			

Seven U.S. oil areas set producing depth records

SEVEN U.S. oil and gas areas reported new record depths for producing wells during 1958—Mississippi, Texas Gulf Coast, North Dakota, Alabama, Texas Panhandle, Alaska and Kansas. One of the new record holders is a gas well, one is gas-condensate and the remaining five are crude producers.

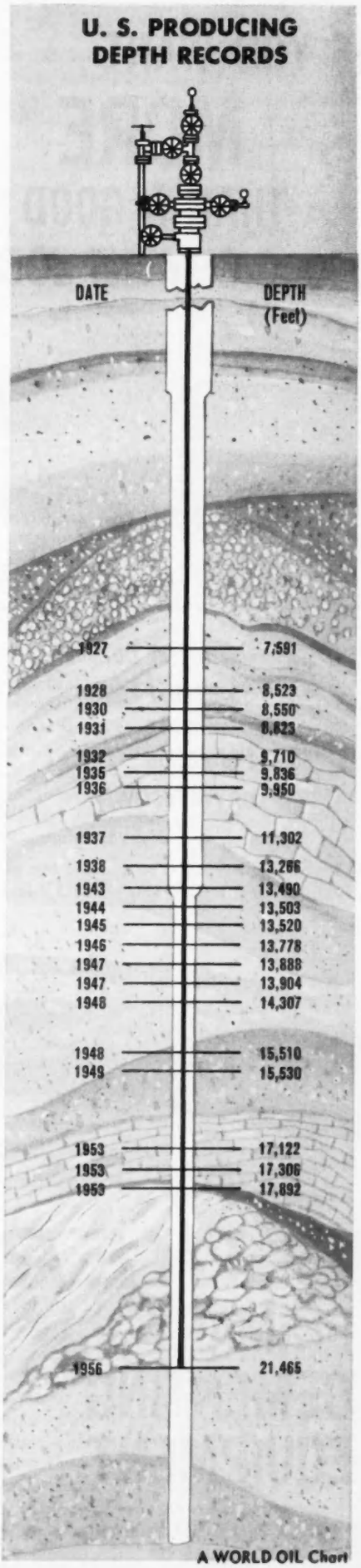
Mississippi entered the 15,000-foot category for the first time with the completion of Gulf Oil Corporation's Unit Tract 28-7, well 1-ZB (crude) in Jasper County's Soso field, from 15,256 feet. Thus, Mississippi has moved from the nation's 10th deepest producing area (with a 13,556-foot well completed in 1957) to seventh place.

The Texas Gulf Coast has a new gas-condensate well producing from the 14,000-foot level, Hassie Unit Trust's Sass 1, in Galveston County's Alto Loma field, from 14,156 feet. Other wells producing from record depths for the first time include:

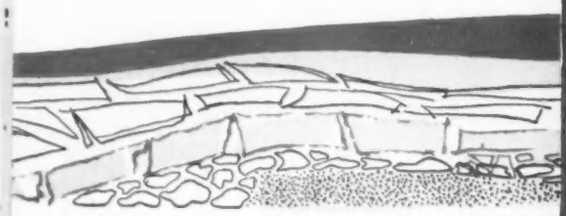
- North Dakota's Amerada H. H. Shelvik Tract 1, No. 1, a wildcat, crude producer in McKenzie County from 12,666 feet.
- Alabama's Zach Brooks Company and Magnolia School Land 1, crude producer in Mobile County's Citronelle field from 11,612 feet.
- Texas Panhandle's Phillips Stricklet "A," crude producer in Gray County from 11,273 feet.
- Alaska's Standard of California-Richfield et al Swanson River Unit 2, Sec. 22-8w-9w, crude producer from 11,060 feet.
- Kansas' Cabot Carbon Company

Holders of Record as Deepest Producing Well in U. S., Since 1927

Year Drilled	WELL AND LOCATION	Production	Bottom of Pay (Feet)
1927	E. J. Miley's Athens 6, Rosecrans field, California	....	7,591
1928	Texon Oil & Land Co.'s University 1-B, Big Lake field, West Texas	Oil	8,523
1930	Star Petroleum Co.'s Colby 2, Long Beach, California	....	8,550
1931	Tide Water Associated Oil Co.'s Lloyd 57, Ventura Avenue field, California	Oil	8,823
1932	Tide Water Associated Oil Co.'s Lloyd 83, Ventura Avenue field, California	Oil	9,710
1935	Tide Water Associated Oil Co.'s Lloyd 131, Ventura Avenue field, California	Oil	9,836
1936	The Texas Co.'s Lafitte 5, Lafitte field, South Louisiana	Oil	9,950
1937	Union Oil Co.'s Kernco 85-34, Rio Bravo field, Kern County, California	Oil	11,302
1938	Fohs Oil Co.'s Buckley-Bourg 1, DeLarge field, South Louisiana	*Cond.	13,266
1943	Union Producing Co.-Fohs Oil Co.'s Fitzpatrick-Vizard 1, DeLarge field, South Louisiana	*Cond.	13,490
1944	Union Producing Co.-Fohs Oil Co.'s Buckley-Bourg 2, DeLarge field, South Louisiana	Oil	13,503
1945	Shell Oil Co.'s Smith-State Unit 1-1, Weeks Island field, South Louisiana	Oil	13,520
1946	Shell Oil Co.'s Smith-State Unit 1-2, Weeks Island field, South Louisiana	Oil	13,778
1947	Shell Oil Co.'s Smith-State Unit 1-3, Weeks Island field, South Louisiana	Oil	13,888
1947	The Texas Co.'s LaFourche Basin Levee Dist. 1, Queen Bess Island field, South Louisiana	*Cond.	13,904
1948	Pure Oil Co.'s Unit 1, West Poison Spider field, Wyoming	Oil	14,307
1948	Denver Producing & Refg. Co.'s School Land 1-A, Cogar field, Caddo County, Okla.	Gas	15,510
1949	Standard Oil Co. of California's Mushrush 5, Wasco field, Kern County, California	Oil	15,530
1953	Shell Oil Co.'s Weeks-Gall Unit 1-1, Weeks Island field, South Louisiana	Oil	17,122
1953	Shell Oil Co.'s Gonsoulin Minvielle-State 2, Weeks Island field, South Louisiana	Oil	17,306
1953	Richfield Oil Corp.'s Cole Levee "A" 67-29, Coles Levee, North field, California	Oil	17,892
1956	Richardson & Bass et al's Humble-LL&E 1-L, Lake Washington field, South Louisiana	Oil	21,465

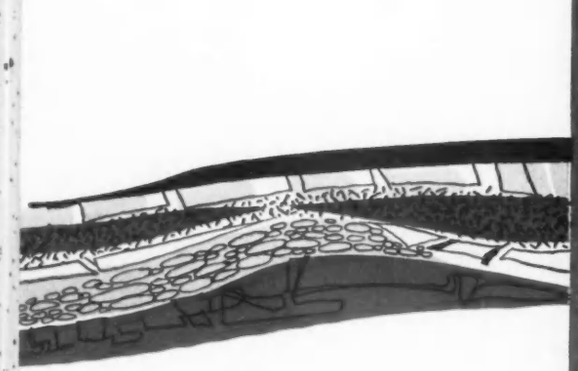


IF YOU WANT MORE* THAN A GOOD CEMENT JOB...

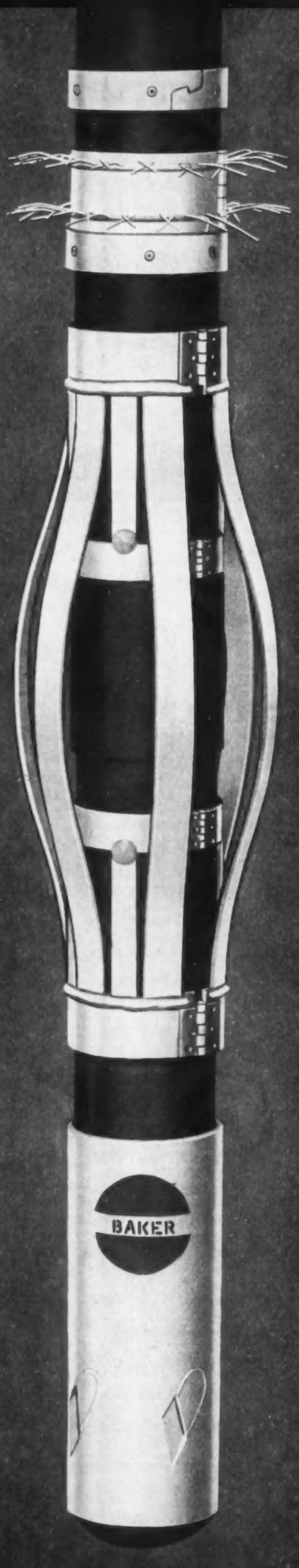


* *Casing on Bottom Safer and Faster*

* *Protection of Productivity*

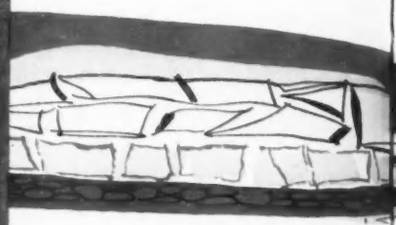


...Specify *BAKER* PRIMARY CEMENTING EQUIPMENT



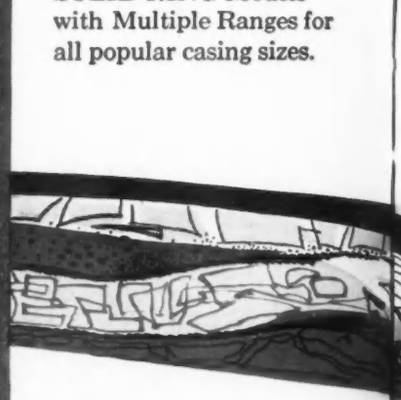
Baker Wall Scratchers

HINGE-LOK or SOLID-RING Models for all popular casing sizes.



Baker Casing Centralizers

HINGE-LOK or SOLID-RING Models with Multiple Ranges for all popular casing sizes.



Baker Fill-Up Equipment

DIFFERENTIAL Shoes and Collars for *any* well, and economical FLEXIFLOW Shoes and Collars for wells of *moderate* depth.

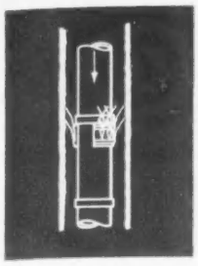


Fig. A

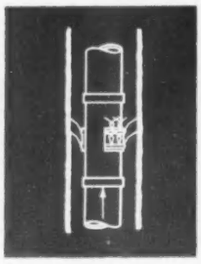


Fig. B

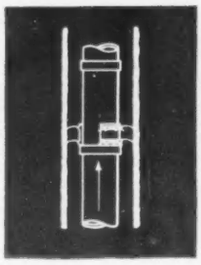


Fig. C

Fig. A Scratcher wires, retained by integral hinged mounting, swing freely upward and do not remove mud cake while running in.

Fig. B Even when casing is lifted out of the slips, the entire Scratcher remains stationary. Only when reciprocated, and

Fig. C ...only at the cementing area does the "scissors" action of the crossed wires remove mud cake.

Baker Scratchers remove mud cake only from the cementing area; this "controlled scratching" protects productivity.

While running in, the scratcher wires automatically swing upward along the casing, where they are safe from damage; permit free, unrestricted lowering of the casing; and do not disturb or remove mud cake. There is no danger of "balled-up" mud collecting on the scratcher wires to plug the annulus and contribute to pressure surges with possible "mudding-off" of the producing zone. Only when the cementing area is reached and the casing is reciprocated do the double rows of strong "crossed" spring wires automatically reach out, dig in, and remove the mud cake with efficient "scissors" action.

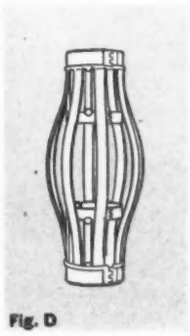


Fig. D

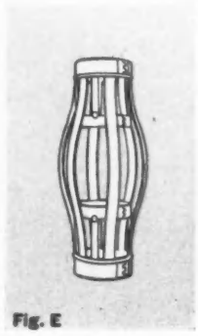


Fig. E

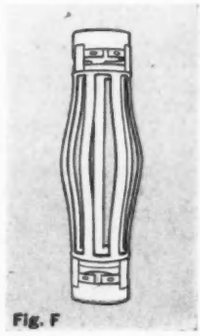


Fig. F

Fig. D "Extended" Range HINGE-LOK Baker H-25 Casing Centralizer. Product No. 9113.

Fig. E "Normal" Range HINGE-LOK Baker H-20 Casing Centralizer, Product No. 9112.

Fig. F "Slim Hole" SOLID-RING Baker G-15 Casing Centralizer, Product No. 910-G.

Baker Centralizers assure cementing clearance. "No-scrape" design prevents "balling", plugged annulus and stuck casing.

The QUALITY of Baker Casing Centralizers starts with "sled-runner" springs made of high quality spring steel—tested and pre-set by flattening in hydraulic presses—then butt-welded to collars to form a unit of great strength. Pre-setting of the springs to the pre-calculated optimum bowed height enables each centralizer to pass tight spots or dog legs without damage to the assembly, and ensures GREATER CENTERING FORCE for maintaining annular clearance for cementing.

Baker Centralizers do not remove mud cake which could plug the annulus, contribute to pressure surges and restrict productivity.

BAKER OIL TOOLS, INC.

Houston • Los Angeles • New York

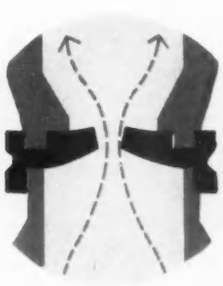


Fig. G

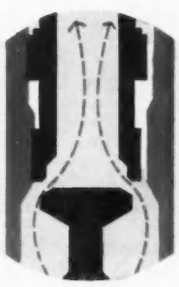


Fig. H

Fig. G Variable FILL-UP Valve as used in FLEXIFLOW Equipment.

Fig. H Variable FILL-UP Valve as used in DIFFERENTIAL Equipment.

Baker Fill-Up Equipment saves time in running casing, but does not create pressure surges that reduce productivity.

Destructive pressure surges—often created when casing equipped with conventional floating equipment is lowered into the well—can now be avoided. The Variable Valve in either Baker DIFFERENTIAL or Baker FLEXI-FLOW "Fill-up" Shoes and Collars, permits casing to fill from the bottom up; eliminates expensive, time-consuming surface filling; and automatically coordinates the *rate of fill* with the *rate of lowering* to AVOID high pressure surges. Baker FILL-UP Equipment permits the casing to be lowered at normal rates, saving rig time and reducing danger of sticking the pipe; chances for successful primary cementing are increased; formations are protected from high pressure surges which can impair their productivity.

et al Adamson 2, a wildcat gas producer in Seward County from 6,400.

Deepest Wells. For the third year, the nation's deepest inshore producing well is Richardson and Bass et al's Humble LL&E 1-L, producing from 20,745 feet in the Lake Washington field, South Louisiana. The well was completed May 5, 1956, through perforations at the 21,419-21,435 and 21,443-21,465 foot intervals, then was plugged back to 20,745 feet in 1957.

South Louisiana also holds the nation's offshore depth record, with Hunt Oil's gas-condensate producer from 16,840 feet in the Coon Point field.

The nation's second, third and fourth deepest producing wells were all completed during 1957. They are: Oklahoma's British American Oil Company Krieger 1, Knox field, Stephens County, from 16,912 feet; Hunt Oil's State 758-2, Coon Point field, producing from 16,840 feet in the Gulf of Mexico off the South Louisiana Coast, and Wyoming's Pure Oil Badwater Unit 1, a wildcat producing from 16,472 feet in Natrona County.

In fifth position is Standard Oil Company of California's Mushrush 5, producing from 15,530 feet in Kern County's Wasco field. Sixth is West Texas' Phillips Petroleum Odom 1-A, producing from 15,324 feet in Pecos County's Puckett field.

Regional Producing Depth Records in the U. S.

State or District	Bottom of Pay (Feet)	Year Drilled	Wells and Location	Producing Formation	Production
S. La.-Inshore	**20,745**	1956	Richardson & Bass et al's Humble LI&E 1-L, Plaquemines Parish; originally produced from 21,465 feet; later was plugged back to 20,745 feet	Miocene	Oil
Oklahoma	**16,912**	1957	British American's Krieger 1, Knox Field, Stephens County	Ordovician	*Cond.
S. La.-Offshore	**16,840**	1957	Hunt Oil's State 758-2, Coon Point Field, Ship Shoal Area	Miocene	*Cond.
Wyoming	**16,472**	1957	Pure Oil's Badwater Unit 1, Wildcat, Natrona County	U. Cretaceous	Gas
California	**15,530**	1949	Standard of California's Mushroom, 5, Wasco Field, Kern County	Eocene	Oil
West Texas	**15,324**	1953	Phillips Petroleum's Odom 1-A, Puckett Field, Pecos County	Ellenburger	*Cond.
Mississippi	**15,256**	1958	Gulf Oil Corporation's Unit Tract 28-7, Well 1-ZB, Soso Field, Jasper County	Cotton Valley	Oil
N. Mex.-S.E.	**15,025**	1955	Continental's Bell Lake Unit-1-A, Bell Lake Field, Lea County	Devonian	Gas
S. W. Texas	**14,479**	1956	Amerada's Craig 1, Ranch Field, McMullen County	Edwards	*Cond.
Tex.-GulfCoast	**14,156**	1958	Hassie Hunt Trust's Sass 1, Alta Loma Field, Galveston County	Frio	*Cond.
North Dakota	**12,666**	1958	Amerada's H. H. Shelvik Tract 1 #1, Wildcat, McKenzie County	Silurian	Oil
Montana	**12,605**	1955	Sun Oil & Phillips' Dynneson 1, Brorson Field, Richland County	Red River	Oil
East Texas	**12,415**	1956	Tide Water's Irene Alexander 1-D, New Hope Field, Franklin County	Smackover	*Cond.
Florida	**11,588**	1948	Humble's Lee Tidewater Cypress Lbr. 1-B, Sunniland Field, Collier Co. (abandoned)	L. Cretaceous	Oil
Alabama	**11,504**	1956	Zach Brooks et al's D.R. Coley 1, Citronelle Field, Mobile County	L. Rodessa	Oil
Alabama	**11,612**	1958	Zach Brooks Co. and Magnolia's School Land 1, Citronelle Field, Mobile County	L. Rodessa	Oil
N. Louisiana	**11,310**	1953	A. J. Hodges' Pardee-Callaway et al 1, Ivan Field, Webster Parish	Smackover	*Cond.
N. Tex. Pan	**11,273**	1958	Phillips' Stricklet "A" Gray County	Ordovician	Oil
Alaska	**11,060**	1958	Standard of California-Richfield et al's Swanson River Unit 2, Sec. 22-8N-9W	Eocene	Oil
Utah	**10,244**	1952	Phillips & Carter's Peterson Unit E-11, Roosevelt Field, Uintah County	Wasatch	Oil
Colorado	**10,084**	1957	Malco Refineries' Kowach 1, Buck Peak Field, Moffat County	Weber	*Cond.
Arkansas	**9,484**	1957	Phillips et al's Talley B-1, Plainfield Field, Columbia County	Cotton Valley	Oil
N. Mex. N.W.	**9,300**	1950	El Paso Natural's Ute 4, Barker Creek Field, San Juan County	Paradox	Gas
South Dakota	**8,691**	1954	Shell Oil's State 1-A, Buffalo Field, Harding County	Red River	Oil
W. Virginia	**8,410**	1946	Ohio Oil's Kuykendall et al 1, Canaan Valley Field, Tucker Co.	Oriskany	Gas
Michigan	**7,760**	1941	Gulf Refining's Bateson 1, Monitor Twp., Bay County (Abandoned)	Salina	Gas
Nebraska	**7,419**	1956	R.W. McDowell, Jr's State 778-1, McDowell Field, Kimball County	Dakota "J"	Oil
Nevada	**7,360**	1955	Shell's Eagle Springs Unit 15-35, Eagle Springs Field, Nye County	Tertiary	Oil
Maryland	**7,100**	1953	Snee & Eberly's McCullough Heirs 1, Garrett County	Chert	Gas
Kansas	**6,400**	1958	Cabot Carbon Co. et al Adamson 2, Wildcat, 11-34S-34W, Seward County	Chester	Gas
Virginia	**6,158**	1954	Clinchfield Coal's Std. Banner Coal 152, Ervington Dist., Dickenson County	Silurian	Gas
Ohio	**5,822**	1941	East Ohio Gas' Elizabeth Phillips 1, Sandyville Field, Harrison County	Clinton	Gas
Arizona	**5,392**	1956	Franco Western Oil's Navajo 1, Franav Field, Apache County	Paradox	*Cond.
Kentucky	**5,373**	1957	United Fuel Gas's Kentland 67, Big Sandy Field, Pike County	Devonian	Gas
New York	**5,229**	1942	E. Kent Kane's Robert Lewis 1, W. Union Twp., Steuben County	Oriskany	Gas
Illinois	**4,780**	1943	Kingwood Oil's Shanafelt 24-A, Salem Field, Marion County	Trenton	Oil
Washington	**4,130**	1957	Sunshine Mining's J.W. Tanner-Medina 1, Grays-Harbor County	.....	Oil
Tennessee	**3,107**	1954	Greenup-David et al's Coal Creek 1, Briceville Field, Anderson County	Chattanooga	Gas
Indiana	**3,093**	1953	Hartman & Jordan's Comm. Albert Aldrich & J.C. Ellis 1, Welborn, North Field, Posey County	McClosky	Oil
Missouri	**1,444**	1940	Cities Service's Jim Cook 1, Tarkio Field, Atchison County	Bartlesville	Oil

a slogan earned . . .

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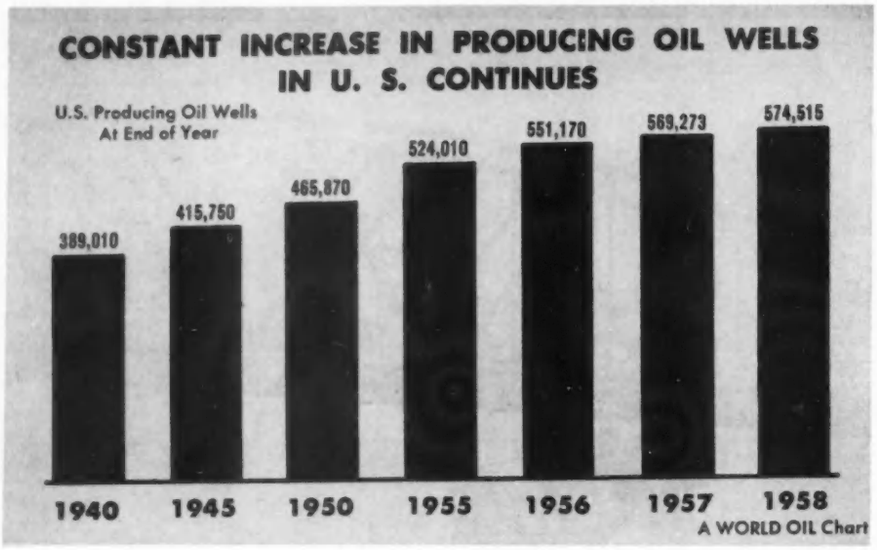
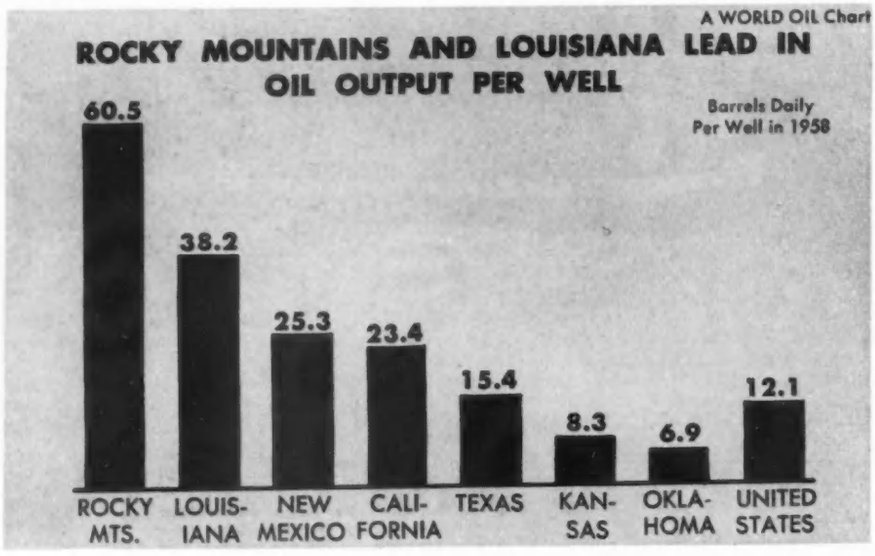
Growth in U.S. producing oil wells slower





THE ACCELERATED postwar growth rate in the number of U.S. producing wells declined for the second consecutive year in 1958 after a near record year in 1956.

At the close of 1958, there were 574,515 domestic oil producing wells, according to information obtained by WORLD OIL from oil companies and various state oil agencies. This is equal to an increase of only 5,242 from the 1957 figure of 569,273 which was reported recently by the Bureau of Mines.

In contrast, the Bureau of Mines reported 18,103 more producing wells in 1957 than in 1956, and 27,160 more wells in 1956 than the previous year.

The following factors influenced last year's slower rate of growth in the number of producing wells:

- The total of 23,554 newly completed oil wells was 3,965 under the 27,519 wells completed in 1957. Actually, 1958 was the second time since 1952 that a decrease in total new well completions had been reported.
- Total wells abandoned last year amounted to 10,972, which was an increase of 1,556 over the 1957 total.

Crude production drops. The December, 1958, average daily yield for each oil producing well, amounted to 12.1 barrels, lowest since 1950. Last year's production rate per well per day was 0.7 of a barrel lower than the daily production rate in December. 1957.

U. S. Producing Oil Wells and Daily Output Per Well, by Years

Sources: Producing wells and output from Bureau of Mines except as noted. Wells completed from WORLD OIL and predecessor, The Oil Weekly, except 1918-1920 from Bureau of Mines. Output per well obtained by dividing daily average U. S. production for year by average number between wells producing Jan. 1 and Dec. 31.

YEAR	Wells Producing at Year End	Changes During Year: Wells Completed	Changes During Year: *Wells Abandoned	Changes During Year: †Net Gain in Wells	Bbls. Prod. per Well per Day
1918	203,375	17,860	.....	.....	....
1919	227,000	21,041	—2,584	23,625	4.8
1920	251,000	24,278	278	24,000	5.0
1921	274,500	14,715	—8,785	23,500	4.9
1922	284,880	17,790	7,410	10,380	5.7
1923	290,100	16,182	10,962	5,220	6.6
1924	299,100	14,707	5,707	9,000	6.2
1925	306,100	17,029	10,029	7,000	6.5
1926	318,600	18,626	6,126	12,500	6.8
1927	323,300	14,382	9,682	4,700	7.7
1928	327,800	12,348	7,848	4,500	7.6
1929	328,200	15,362	14,962	400	8.4
1930	331,070	11,693	8,823	2,870	7.5
1931	315,850	7,011	22,231	—15,220	7.2
1932	321,500	10,530	4,880	5,650	6.7
1933	326,850	8,070	2,720	5,350	7.7
1934	333,070	13,119	6,899	6,220	7.5
1935	340,990	15,418	7,498	7,920	8.1
1936	349,450	18,704	10,244	8,460	8.7
1937	363,030	23,115	9,535	13,580	9.8
1938	369,640	19,106	12,496	6,610	9.1
1939	380,390	17,734	6,984	10,750	9.2
1940	389,010	19,843	11,223	8,620	9.6
1941	399,960	19,590	8,640	10,950	9.7
1942	404,840	10,977	6,097	4,880	9.4
1943	407,170	9,887	7,557	2,330	10.2
1944	412,220	13,502	8,452	5,050	11.2
1945	415,750	13,944	10,414	3,530	11.3
1946	421,460	16,087	10,377	5,710	11.3
1947	426,280	17,613	12,793	4,820	12.0
1948	437,880	22,197	10,597	11,600	12.8
1949	448,680	21,415	10,615	10,800	11.4
1950	465,870	23,775	6,585	17,190	11.8
1951	474,990	23,532	14,412	9,120	13.1
1952	488,520	23,371	9,841	13,530	13.0
1953	598,940	25,251	14,831	10,420	13.1
1954	511,200	28,063	15,803	12,260	12.6
1955	524,010	30,474	17,664	12,810	13.2
1956	551,170	30,641	3,481	27,160	13.3
1957	569,273	27,519	9,416	18,103	12.8
1957‡	563,543	27,519	18,750	8,769	12.0
1958‡	574,515	23,554	10,972	12,582	12.1

* Wells abandoned or shut in. Minus sign (—) indicates shut in wells put on production. † Minus sign (—) indicates decrease in producing wells. ‡ WORLD OIL estimate.

Continued on Page 144

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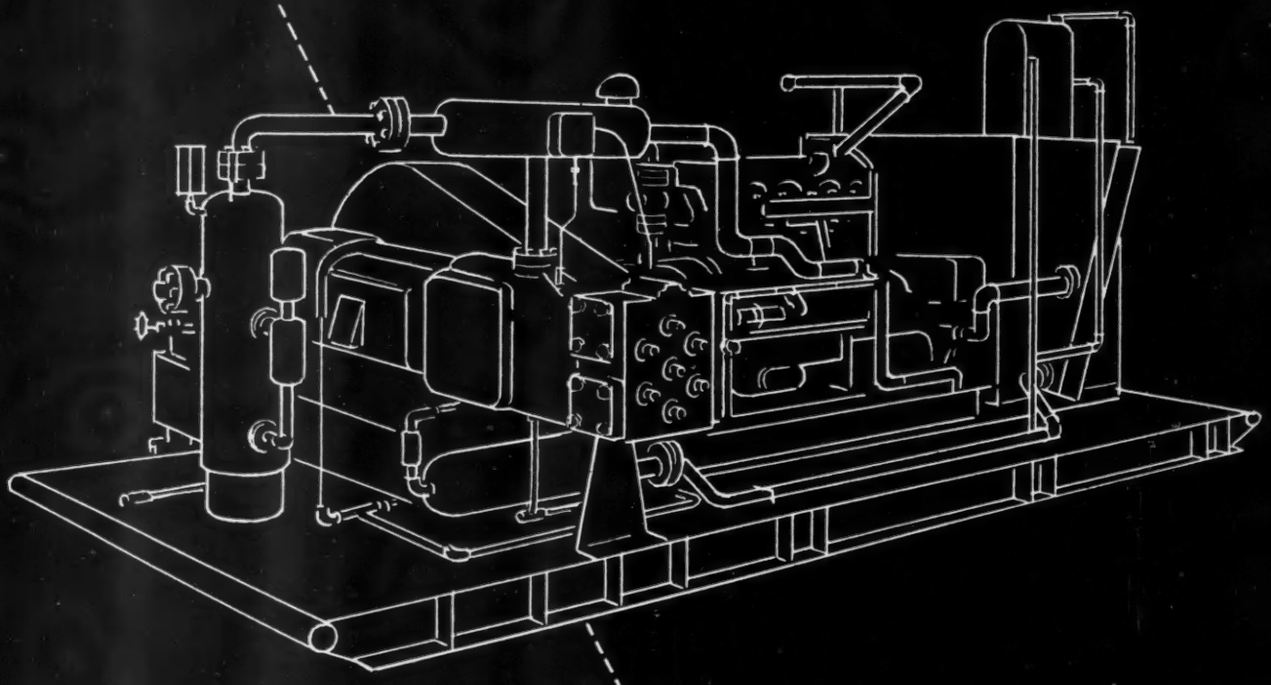

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U. S. Wells Producing Crude Oil and Lease Condensate, Methods of Producing, and Average Output Per Well, by States and Districts, at End of 1958

Data include only wells producing crude oil and lease condensate, handled as crude. Figures do not include inactive or shut-in wells, gas wells, or gas-condensate wells yielding condensate production through operation of plants. Data compiled by WORLD OIL, with cooperation of state conservation departments and other sources. Production is for December, from API weekly reports.

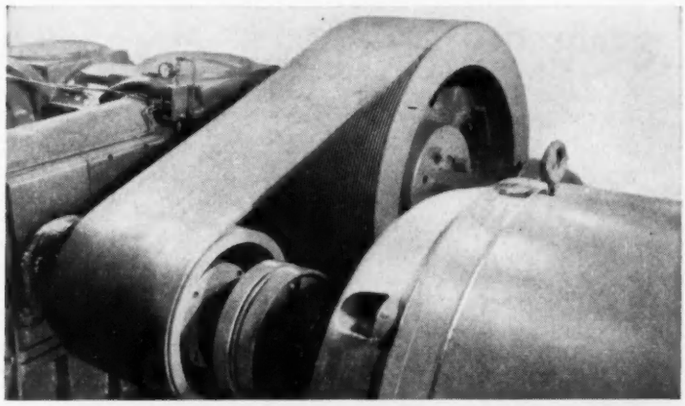
STATE or DISTRICT	CONDENSATE WELLS			CRUDE OIL WELLS					TOTAL CRUDE OIL AND CONDENSATE WELLS		
		Bbls. Daily Produced					Bbls. Daily Produced			Bbls. Daily Produced	
	Wells	Total	Per Well	Flowing	Artificial Lift	Total Wells	Total	Per Well	Wells	Total	Per Well
Alabama				**27**	**227**	**254**	**16,000**	**63.0**	**254**	**16,000**	**63.0**
Alaska				**1**		**1**			**1**		
Arkansas	‡	**132**		**232**	**5,417**	**5,649**	**82,668**	**14.6**	**5,649**	**82,800**	**14.7**
California	*			**1,290**	**35,170**	**36,460**	**854,700**	**23.4**	**36,460**	**854,700**	**23.4**
San Joaquin Valley	*			784	18,101	18,885			18,885		
Coastal District				394	5,306	5,700			5,700		
Los Angeles Basin				112	11,763	11,875			11,875		
Colorado	‡			**573**	**1,625**	**2,198**	**128,200**	**53.8**	**2,198**	**128,200**	**53.8**
Florida						**11**	**1,200**	**109.1**	**11**	**1,200**	**109.1**
Illinois				**231**	**38,366**	**38,597**	**225,600**	**5.8**	**38,597**	**225,600**	**5.8**
Indiana				**173**	**5,094**	**5,267**	**32,700**	**6.2**	**5,267**	**32,700**	**6.2**
Kansas				**131**	**39,133**	**39,264**	**324,700**	**8.3**	**39,264**	**324,700**	**8.3**
Kentucky				**8**	**18,982**	**18,990**	**62,300**	**3.3**	**18,990**	**62,300**	**3.3**
Louisiana	**2,776**	**95,801**	**345.1**	**8,537**	**13,176**	**21,713**	**829,099**	**38.2**	**24,489**	**924,900**	**37.8**
North Louisiana	863	3,866	44.8	1,606	10,325	11,931	110,334	9.2	12,794	114,200	8.9
South Louisiana	1,913	91,935	480.6	6,931	2,851	9,782	718,765	73.5	11,695	810,700	69.3
Michigan				**41**	**4,198**	**4,239**	**24,800**	**5.9**	**4,239**	**24,800**	**5.9**
Mississippi	**389**	**4,913**	**126.3**	**352**	**2,087**	**2,439**	**114,687**	**47.0**	**2,828**	**119,600**	**42.3**
Missouri					**119**	**119**	**100**	**0.8**	**119**	**100**	**0.8**
Montana	‡			**407**	**3,210**	**3,617**	**76,800**	**21.2**	**3,617**	**76,800**	**21.2**
Nebraska	‡			**26**	**1,320**	**1,346**	**59,800**	**44.4**	**1,346**	**59,800**	**44.4**
Nevada				**2**		**2**	**100**	**50.0**	**2**	**100**	**50.0**
New Mexico	**745**	**6,265**	**224.5**	**3,972**	**6,839**	**10,811**	**273,335**	**25.3**	**11,556**	**279,600**	**24.2**
Northwest New Mexico	466			234	274	508	250,200	492.5	974	250,200	256.9
Southeast New Mexico	279	6,265	224.5	3,738	6,565	10,303	23,135	2.2	10,582	29,400	2.8
New York					**19,765**	**19,765**	**4,600**	**0.2**	**19,765**	**4,600**	**0.2**
North Dakota				**503**	**640**	**1,143**	**38,900**	**34.0**	**1,143**	**38,900**	**34.0**
Ohio				**175**	**14,850**	**15,025**	**14,200**	**0.9**	**15,025**	**14,200**	**0.9**
Oklahoma	‡			**2,771**	**76,981**	**79,752**	**552,100**	**6.9**	**79,752**	**552,100**	**6.9**
Pennsylvania					**68,050**	**68,050**	**16,000**	**0.2**	**68,050**	**16,000**	**0.2**
South Dakota				**1**	**3**	**4**	**100**	**25.0**	**4**	**100**	**25.0**
Tennessee					**31**	**31**	**100**	**3.2**	**31**	**100**	**3.2**
Texas	**4,524**	**66,403**	**146.8**	**47,897**	**131,781**	**179,678**	**2,768,797**	**15.4**	**184,202**	**2,835,200**	**15.4**
Dist. 1: South Central	70	1,342	191.7	372	7,260	7,632	44,958	5.9	7,702	46,300	6.0
Dist. 2: Middle Gulf	867	7,897	91.1	3,276	2,312	5,588	121,703	21.8	6,455	129,600	20.1
Dist. 3: Upper Gulf	1,187	34,082	287.1	4,609	8,122	12,731	380,418	29.9	13,918	414,500	29.8
Dist. 4: Lower Gulf-S.W.	665	7,521	113.1	4,927	6,925	11,852	197,979	16.7	12,517	205,500	16.4
Dist. 5: East Central	95	250	26.3	336	2,613	2,949	30,950	10.5	3,044	31,200	10.2
Dist. 6: Northeast	621	7,137	114.9	1,968	3,022	4,990	280,663	56.2	5,611	287,800	51.3
Dist. 6: East Texas Field				9,730	9,322	19,052			19,052		
Dist. 7-B: North Central	62	50	8.1	2,395	13,284	15,679	140,950	9.0	15,741	141,000	8.9
Dist. 7-C: West Central	132	3,800	287.9	2,950	4,909	7,859	139,100	17.7	7,991	142,900	17.9
Dist. 8: West	224	1,903	85.0	15,343	32,976	48,319	1,114,697	23.1	48,543	1,116,600	23.0
Dist. 9: North	389	1,550	39.9	1,733	29,720	31,453	215,350	6.8	31,842	216,900	6.8
Dist. 10: Panhandle	212	871	41.1	258	11,316	11,574	102,929	8.9	11,786	103,800	8.8
Utah	‡			**307**	**241**	**548**	**89,500**	**163.3**	**548**	**89,500**	**163.3**
Virginia											
Washington				**1**		**1**			**1**		
West Virginia					**12,740**	**12,740**	**5,300**	**0.4**	**12,740**	**5,300**	**0.4**
Wyoming	‡	**852**		**467**	**6,334**	**6,801**	**334,448**	**49.2**	**6,801**	**335,300**	**49.3**
Total U.S. End 1957	**8,434**	**174,366**	**206.7**	**68,123**	**506,397**	**574,515**	**6,930,834**	**12.1**	**582,949**	**7,105,200**	**12.2**
† Total U.S. End 1956	7,108	156,500	22.0	68,527	495,016	563,543	6,738,100	12.0	570,651	6,894,600	12.1

‡ Arkansas, Colorado, Montana, Nebraska, Oklahoma, Utah, Wyoming have some gas-condensate wells, but data not available, being included in gas wells.

* California condensate wells included in flowing oil wells.

† Data by States in WORLD OIL Feb. 15, 1957, page 196.

R/M Products



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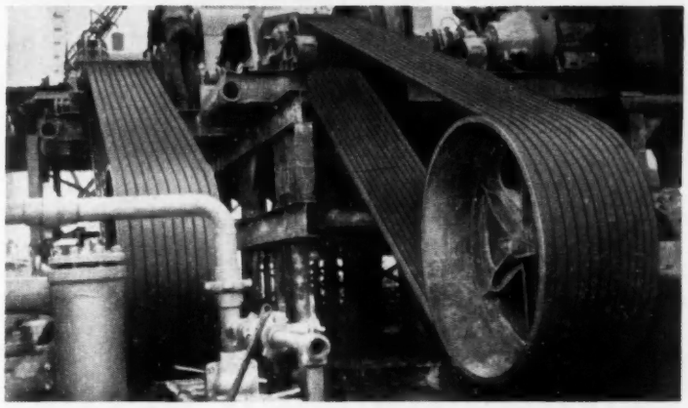

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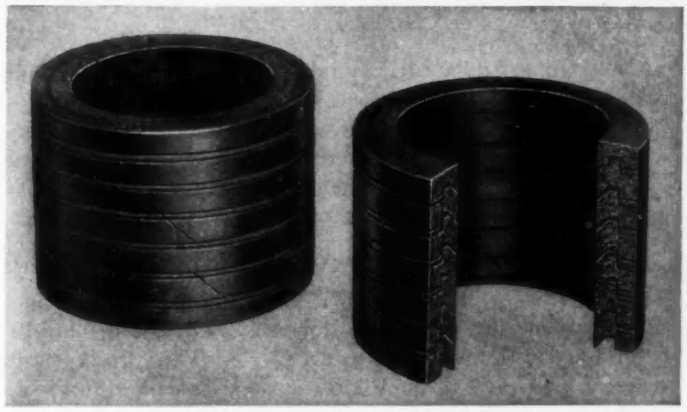

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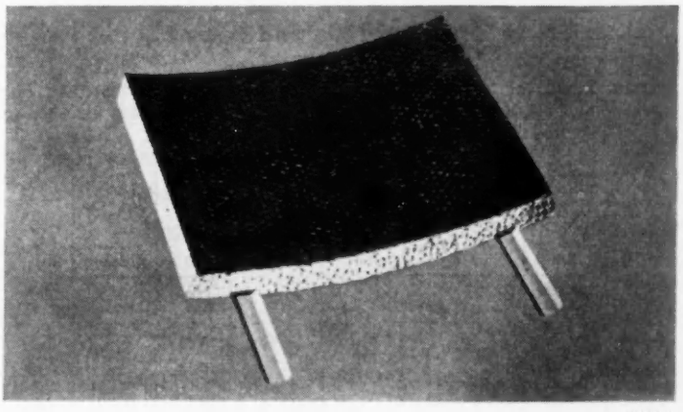

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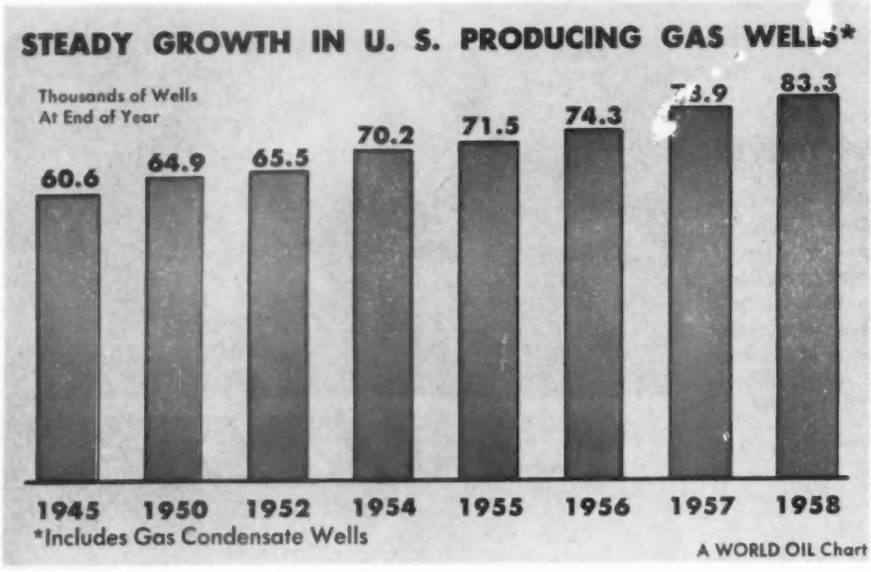


Producing gas wells record continuing gain during 1958

A RECORD NUMBER of gas and gas condensate producing wells was being operated in the United States at the close of 1958. In operation were 83,328 gas and condensate producing wells, 4,459 more than were in operation on the same date of the previous year.

For comparison, the 78,869 gas and condensate producers in operation at the end of 1957 amounted to an increase of 2,561 wells from 1956.

A steady and uninterrupted growth in the number of gas and gas condensate producing wells has been reported each year since 1949. In addition, the rate of growth has been particularly rapid in recent years. The number of such wells in operation at the end of 1958 was 15,105 greater than five years ago, but only 19,116 wells more than 10 years ago.

The rate of growth during 1958 was larger than in 1957, despite the decrease in total U.S. drilling activity which amounted to about 9 percent.

A total of 5,005 new gas and gas-condensate producing wells was completed in 1958, equivalent to an increase of 530 from the previous year. Furthermore, only 446 gas or gas condensate wells were shut in or abandoned last year. These figures compare with the 1957 total of 4,475 completions in this category, 20 less than during 1956, and with abandonments and shut-ins numbering 1,914.

It appeared that with an approximate increase of 4 percent in total U.S. drilling during the current year, another record number of gas and gas-condensate producing wells would be operating at the close of 1959.

Leading states. Pennsylvania, again in 1958, led the nation with 16,300 gas producing wells, up 300 from 1957, followed by West Virginia with 14,400, up 400.

U. S. Producing Gas Wells and Daily Output Per Well, by Years
(Including gas-condensate wells)

Sources: Bureau of Mines except as noted. Output per well obtained by dividing daily average gross production from gas wells for year by average number between wells producing Jan. 1 and Dec. 31.

YEAR	Wells Producing at Year End	Changes During Year: [1]Wells Completed	[2]Wells Abandoned	[3]Net Gain in Wells	[4]Mcf. Prod. Per Well Per Day
1929	[5]53,545	3,107	[6]	[6]	[6]
1930	[5]55,020	2,971	1,496	1,475	[6]
1931	[5]55,756	2,067	1,331	736	[6]
1932	[5]54,156	1,079	2,679	—1,600	[6]
1933	[5]53,660	1,190	1,686	—496	[6]
1934	54,130	1,496	1,026	470	[6]
1935	53,790	1,802	2,142	—340	[6]
1936	54,500	2,375	1,665	710	75
1937	55,050	2,732	2,182	550	81
1938	53,770	2,143	3,423	—1,280	79
1939	55,530	2,030	270	1,760	92
1940	53,880	2,265	3,915	—1,650	105
1941	55,500	3,279	1,659	1,620	125
1942	56,150	2,790	2,140	650	142
1943	57,200	2,390	1,340	1,050	155
1944	58,780	3,078	1,498	1,580	172
1945	60,600	3,192	1,372	1,820	178
1946	62,740	3,562	1,422	2,140	169
1947	63,676	3,720	2,784	936	163
1948	64,212	3,312	2,776	536	196
1949	63,346	3,499	4,365	—866	214
1950	64,900	3,480	1,926	1,554	239
1951	65,100	3,542	3,342	200	273
1952	65,450	3,693	3,343	350	286
1953	68,223	3,806	1,033	2,773	291
1954	70,192	4,219	2,250	1,969	291
1955	71,475	4,169	2,886	1,283	303
1956	74,261	4,495	1,709	2,786	311
1956[1]	76,308	4,495	1,989	2,506	302
1957[1]	78,869	4,622	2,061	2,561	308
1958[1]	83,328	5,005	546	4,459	304

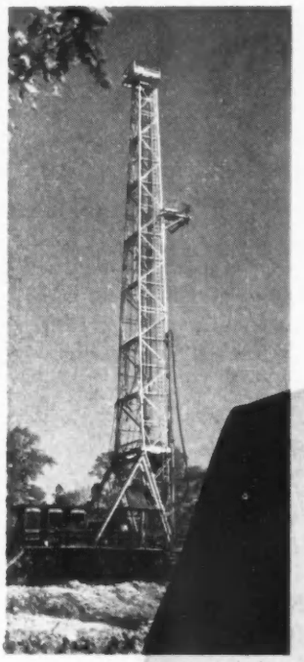
[1] WORLD OIL data. [2] Wells abandoned or shut in. Minus sign (—) indicates shut in wells put on production. [3] Minus sign (—) indicates decrease in producing wells. [4] Thousand cubic feet. [5] Average during year. [6] Not available.

U. S. Gas and Gas-Condensate Wells Producing at End of Year, 1957 and 1958

Data include: Wells producing gas exclusively; wells producing lease condensate except where shown as yielding plant condensate; no wells producing crude oil; no shut in wells

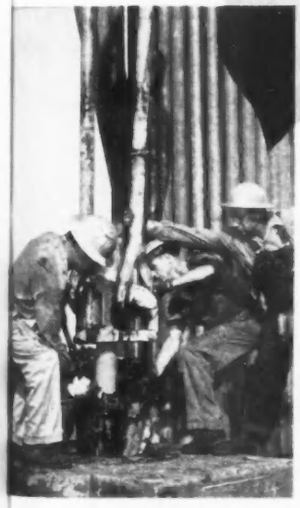
State or District	END OF 1957: Gas Wells	END OF 1957: Gas Cond. Wells	END OF 1958: Gas Wells	END OF 1958: Gas Cond. Wells
Arkansas	219	*	372	*
California	350	.....	395	*
San Joaquin	341	.....	380	*
Coastal District	6	.....	11	.....
Los Angeles Basin	3	.....	4	.....
Colorado	681	*	712	*
Illinois	53	25	103	.....
Indiana	350	.....	369	.....
Kansas	6,014	.....	6,256	.....
Kentucky	4,300	9	4,450	.....
Louisiana	2,363	2,509	2,350	2,776
North Louisiana	2,301	818	2,261	863
South Louisiana	62	1,691	69	1,913
Michigan	338	.....	502	.....
Mississippi	471	*	218	389
Missouri	4	.....	5	.....
Montana	659	*	601	*
Nebraska	28	*	63	*
New Mexico	3,430	804	4,162	745
Northwest N.M.	2,602	531	3,219	466
Southeast N.M.	828	273	943	279
New York	1,200	.....	1,200	.....
Ohio	6,890	.....	6,870	.....
Oklahoma	4,407	*	4,801	*
Pennsylvania	16,000	.....	16,300	.....
Tennessee	29	.....	16	.....
Texas	9,537	3,754	10,295	4,524
Dist. 1: S. Central	43	42	87	70
Dist. 2: Mid. Gulf	907	845	1,044	867
Dist. 3: U. Gulf	757	1,070	682	1,187
Dist. 4: L.Gulf-S.W.	1,634	588	1,735	665
Dist. 5: E. Central	51	110	69	95
Dist. 6: Northeast	1,160	570	1,294	621
Dist. 7-B: N. Cent.	470	38	384	62
Dist. 7-C: W. Cent.	36	99	74	132
Dist. 8: West	239	127	282	224
Dist. 9: North	119	145	116	389
Dist. 10: Panhandle	4,121	120	4,528	212
Utah	47	*	49	.....
West Virginia	14,000	.....	14,400	.....
Wyoming	316	*	335	.....
†Miscellaneous	75	.....	70	.....
Total U.S.	71,761	7,108	74,894	8,434

† Maryland, Virginia.
* Arkansas, Colorado, Mississippi, Montana, Nebraska, Oklahoma, Utah, Wyoming have some gas-condensate wells, but data not available, being included in gas wells. California condensate wells are included in oil producing wells.



MORE WAYS THAN ONE

TO BE AN OIL MAN



Ask the toolpusher what he is, and he says he's an oil man. Ask the mud dealer, the wire line operator, the supplier. Ask the tool rental man, ask the man 'dozing the slush pits, the drilling contractor, the producer. They are all oil men. And the oil industry depends on all of them and many more.

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E. O. Buck, *senior vice president*
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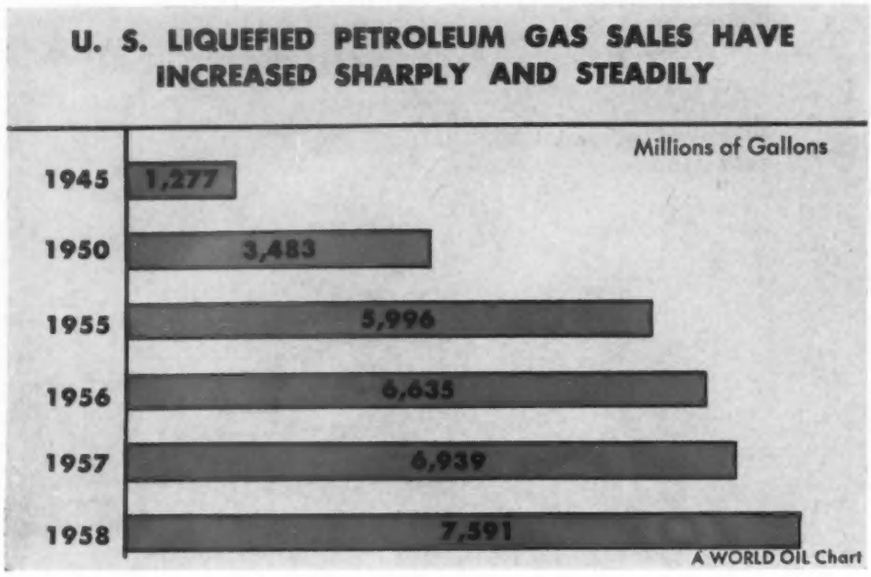

LPG sales may exceed 8 billion gallons in '59

LIQUEFIED PETROLEUM GAS sales weathered the recession in spectacular fashion. Preliminary figures indicate total sales increased 652,300,000 gallons, or 9.4 percent over 1957, for a new record high of 7,591,400,000 gallons. This compares with increases of 4.6 percent in 1957 and 8.4 percent in 1956.

With the economy showing definite recovery trends, there is every indication that 1959 will be another record year. The trend to suburban living probably will continue and new home construction remains high.

The aggressive LPG distributor will have an excellent chance to build his load during the next 12 months. Demand for heating and air conditioning is increasing rapidly—and there is a growing potential of summer "load builders." A few of the new markets include crop drying, flame weeding, tractor fuel, asphalt heating, and aggregate drying.

Supply to increase. Production of LPG at natural gasoline plants and refineries increased approximately 2 percent during 1958. Twenty-six new plants went on stream during the year, and several existing facilities were expanded. It is estimated that 13 new plants will be added in 1959.

Underground storage capacity for LPG continues to grow. Available underground storage capacity now totals over 1.6 billion gallons, an increase of almost 20 percent over 1957. An additional 100 million gallons is under construction, with additional underground storage in the planning stage.

Why '58 sales increased. A prolonged cold spell in the South and Southeast combined with an expanding demand for central gas heating to boost 1958 LPG sales 30 percent over the 50 million gallons average annual increase since 1950.

Following is a brief summary of 1958 LPG sales according to uses and percent of total sales:

- Domestic and commercial (46.5 percent of total)—Sales were up 467,230,000 gallons, or 15.2 percent, over 1957 for a new record total of 3,534,300,000 gallons.
- Chemical manufacturing (24.6 percent of total)—Sales increased 136,900,000 gallons, or 7.9 percent, over 1957 to 1,869,200,000 gallons. LPG sales for chemical manufacturing has increased an averge of 135 million gallons a year since 1950.
- Motor fuel (10.8 percent of total)—Sales increased 16,200,000 gallons, or 2 percent, over 1957 to 821,200,000 gallons.
- Industrial and miscellaneous (9.9 percent of total)—Sales up 63,100,000 gallons, or 9.2 percent, over 1957 to 748,400,000 gallons.
- Other uses (8.2 percent of total)—Gas manufacturing sales were up 23,300,000 gallons or 10.1 percent over 1957 to 254,500,000 gallons, accounting for 3.4 percent of total sales. The volume of LPG used in the manufacture of synthetic rubber was down 54,400,000 gallons or 13 percent from the amount used in 1957 to 363,800,000 gallons, accounting for 4.8 percent of total LPG sales.

Domestic and commercial. It is estimated that 230,000,000 gallons of the 467,230,000 gallon increase in the domestic and commercial market over 1957 occurred primarily because of the unusually severe winter in the South and Southeast. This illustrates the tremendous effect weather has on the LPG market.

The most important factor in domestic growth continues to be house heating. Central gas heat is becoming more and more popular, and new customers continue to convert to LPG for house heating from other fuels.

Also, industry reports reveal that residential gas air conditioner sales exceeded 7,000 units in 1958, compared with about 2,500 units sold in 1957. Although most of the air conditioners sold use natural gas, the sales figures indicate the growing demand for LPG units. Several types of gas air conditioners are available and others are in advanced stages of development.

Chemical manufacture. Feedstock for polyethylene manufacture con-

Data for this article supplied by George R. Benz, manager, Engineering department; W. F. DeVoe, manager, LPG Sales, Sales department; and Paul W. Tucker, technical representative, Engineering department, Phillips Petroleum Company, Bartlesville.

Annual Marketed Production of Liquefied Petroleum Gas in U. S.

(In Thousands of Gallons)

Year	Total		Domestic & Commercial[1]		Motor Fuel		Industrial & Miscellaneous		Gas Manufacturing		Chemical Manufacturing		Rubber Components	
	Volume	Percent Gain	Volume	Percent Gain	Volume	Percent Gain	Volume	Percent Gain	Volume	Percent Gain	Volume	Percent Gain	Volume	Percent Gain
1922	223		.....	....	.....	....	.....	....	.....	.....	.....	....	.....	.....
1925	404	7.2	.....	....	.....	....	.....	....	.....	.....	.....	....	.....	.....
1928	4,523	314.6	2,600	....	.....	....	400	....	1,500	.....	.....	....	.....	.....
1930	18,017	81.4	11,800	100.0	.....	....	2,200	46.7	4,000	60.0	.....	....	.....	.....
1935	76,855	36.2	21,380	20.9	.....	....	47,894	47.6	7,581	20.4	.....	....	.....	.....
1937	141,400	32.6	40,823	36.0	.....	....	62,610	[3]	11,175	19.3	26,792	....	.....	.....
1940	313,456	40.2	134,018	53.1	.....	....	124,482	32.8	20,285	31.4	34,671	29.0	.....	.....
1944	1,060,156	[4]	445,617	29.2	.....	....	254,590	7.3	45,879	22.3	151,985	175.0	162,085	.....
1945	1,276,766	20.4	533,262	19.7	.....	....	256,577	0.8	53,849	17.4	224,291	47.5	208,787	28.8
1950	3,482,567	22.8	2,022,464	24.3	129,818[2]	....	225,638	33.4	251,694	5.2	624,468	14.6	228,485	28.5
1951	4,227,275	21.4	2,166,813	7.1	289,991	123.4	269,408	19.4	281,692	11.9	844,507	35.2	374,864	64.1
1952	4,477,379	5.9	2,266,178	4.6	370,558	27.8	338,959	25.8	259,697	— 7.8	870,990	3.1	370,997	— 1.0
1953	4,932,009	10.2	2,479,180	9.4	498,238	34.5	374,233	10.4	222,430	—14.4	967,427	11.1	390,501	5.3
1954	5,125,533	3.9	2,626,808	6.0	547,204	9.8	401,615	7.3	191,932	—13.7	1,050,239	8.6	307,735	—21.2
1955	6,122,718	19.5	2,801,379	6.6	651,821	19.1	556,371[5]	38.5	213,760	11.4	1,493,177[6]	42.2	406,210	32.0
1956	6,635,763	8.4	3,001,021	7.1	773,471	18.7	630,273	13.3	212,293	— 0.7	1,600,604	7.2	418,101	2.9
1957	6,939,121	4.6	3,067,070	2.2	805,056	4.1	685,313[7]	8.7	231,155	8.7	1,732,338	8.2	418,189	0.0
1958	7,591,400	9.4	3,534,300	15.2	821,200	2.0	748,400	9.2	254,500	10.1	1,869,200	7.9	363,800	—13.0

[1] Householeating and other household and farm uses. Included also is LP-Gas sold by domestic distributors but used for commercial or industrial purposes.
[2] For all years prior to 1950 the Motor Fuel volumes are included in the Industrial and Miscellaneous volumes.
[3] Not comparable due to segregation of chemical manufacturing.
[4] Not comparable due to inclusion of rubber components.
[5] Includes more complete coverage of refinery fuel.
[6] Includes more complete coverage of LPG mixture streams containing ethane and methane.
[7] Includes volume used in secondary recovery of petroleum.

REMARKS: In this table total sales for all years except 1958 were obtained from U. S. Bureau of Mines reports. Distribution for the years 1935 to 1957 inclusive, was obtained from the same source. All other volumes were estimated by the writers. The total sales volume includes all LP-Gas (propane, butane, and propane-butane mixtures) when sold as such. Until 1944 the sale of pentane when sold for any purpose other than motor fuel blending was included. Since then it has been excluded. It does not include butane when blended with heavier petroleum fractions for motor gasoline purposes. Inter-company sales transactions such as purchases of L-P Gas by one company from other companies and resold as LP-Gas have been eliminated in order to avoid duplication of sales figures.

tinues to be the most rapidly growing chemical market for LPG, although production capacity has temporarily outstripped demand. While ethylene oxide and ethyl alcohol continue to rank first and second in ethylene requirements, polyethylene is almost on a par with ethyl alcohol and is gaining rapidly on ethylene oxide.

One of the features of the past year was the increase in ethylene production from butane and propane as compared with production from ethane or recovery from refinery gases.

Motor fuel. Motor fuel used for irrigation pump engines fell far behind previous years due to heavy rainfall in the principal irrigation areas. Reduced oil well drilling resulted in less LPG used for this purpose. However, other motor fuel applications offset these reductions and resulted in an over-all gain for 1958.

Substantial gains continue to be made in the use of LPG in industrial tractors and lift trucks, cargo truck refrigeration units, ready-mix concrete trucks, farm tractors, taxicabs, and small fleet trucks.

Materials handling equipment continues as the fastest growing individual market for LPG motor fuel. An increasing number of airlines are converting their industrial tractors to use LPG for motor fuel.

Early in 1958 the LPGA published a directory listing more than 4,000 service stations and bulk plants selling LPG for motor fuel. However, more stations in good locations are needed to continue the expansion of this market, particularly in the East, Southeast and Northwest.

Industrial and miscellaneous. The 63-million gallon increase in this category appears particularly impressive in view of the generally reduced industrial activity in recent months. However, the unusually cold weather resulted in heavy use of "stand-by" facilities. Use of LPG in secondary recovery of crude oil is estimated to have increased more than 20 percent during 1958.

The highway construction program continues to make asphalt aggregate drying plants a very attractive load builder for many dealers.

Other uses. The increase in use of LPG for gas manufacturing was due primarily to the unseasonably cold weather during the first quarter of 1958—particularly in the Southeast. The gas utility companies continue to be interested in large volume LPG storage facilities, both aboveground and underground, with one large volume refrigerated storage facility being added during the year.

The 13 percent decrease in sales of LPG to make synthetic rubber components can be attributed to the sharp reduction of new car production during 1958, plus the fact that inventories of synthetic rubber and butadiene were reduced during the year.

Actually, it is estimated that the production of synthetic rubber was down more than 16 percent. The reason LPG usage for synthetic rubber components held up better than the production of synthetic rubber is that butadiene capacity in operation during 1958 included a higher percentage of capacity requiring normal butane feedstock than in previous years.

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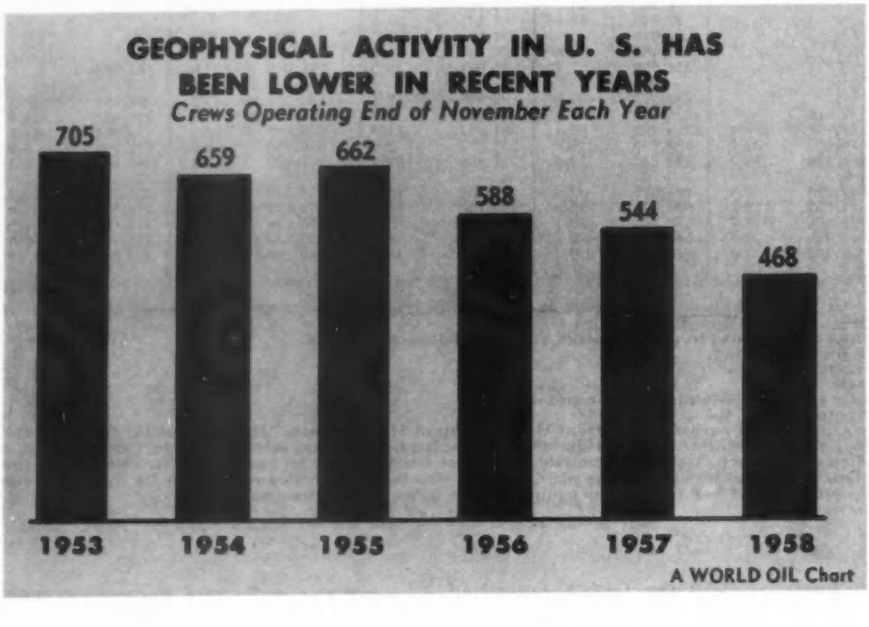
Geophysical crews dip 35% in six years

INCREASED EXPLORATION costs without a corresponding boost in crude prices, excessive imports, and the growing number of companies allotting a larger slice of their exploration budgets for overseas operations have combined to drop U. S. geophysical crew activity 35 percent in six years.



In 1952, there were 722 crews working in the country at the end of November. Last year, the total had declined 254 crews to 468.

Examples of the downward trend in geophysical crew activity, according to end of November reports for each year: Between 1957 and 1958 alone, total geophysical crews declined 14 percent, compared with a 7.5 percent drop in the 1956-1957 period, and an 11 percent decrease between 1955 and 1956.

Every type of geophysical activity declined last year. Seismic operations decreased 12 percent, from 477 crews working on November 30, 1957, to 420 on the same date in 1958.

Forty-two gravity crews were reported operating at November's end in 1958. This figure amounted to a decline of 17 crews or 29 percent from the previous year's total of 59.

Activity declines in leading states

THE NUMBER of active geophysical crews dropped in all but two of the nine leading exploration states between the end of November 1957 and the same date in 1958. As a result, their share of geophysical activity decreased from 88.9 percent of all crews operating in the United States to 86.7 percent.

Louisiana and Montana reported the biggest decreases. There were 20 less crews working in Louisiana at November's end 1958 than the 97 crews reported on the same date in 1957. Meanwhile, 15 fewer crews were working in Montana than the 27 reported a year earlier.

In comparing the two Novembers' end dates, Texas geophysical activity decreased 14 crews to 150, New Mexico decreased 16 crews to 33, Mississippi 5 crews to 33, Oklahoma 5 crews to 20, and Colorado 3 crews to 16.

Wyoming remained the same, with 23 crews operating on both dates, as did Utah with 42 crews. However, the 1958 month-end total of geophysical crews working in Utah has not been available since September 30.

U. S. Geophysical and Core Drilling Crews Operating at End of November, 1957 and 1958

(Source: Interstate Oil Compact Commission)

	GEOPHYSICAL CREWS								CORE DRILL CREWS		Total Geophysical and Core Drill	
	Seismic		Gravity		Magnetometer		Total Geophysical					
STATE	1957	1958	1957	1958	1957	1958	1957	1958	1957	1958	1957	1958
Alabama	2	3	....	....	....	....	**2**	**3**	....	....	2	3
Arizona	13	....	1	....	....	....	**14**	....	....	....	14	....
Arkansas	6	14	....	....	....	....	**6**	**14**	....	....	6	14
California	6	6	1	1	....	....	**7**	**7**	....	....	7	7
Colorado	16	16	3	....	....	....	**19**	**16**	....	....	19	16
Florida	3	5	1	1	....	....	**4**	**6**	1	1	5	7
Georgia	....	....	....	....	....	....	....	....	1	....	1	....
Idaho	....	2	....	2	....	....	....	**4**	1	1	1	5
Illinois	2	....	1	....	....	....	**3**	....	3	5	6	5
Indiana	....	....	....	....	....	....	....	....	1	2	1	2
Kansas	11	6	1	1	....	1	**12**	**8**	2	1	14	9
Louisiana	87	72	10	5	....	....	**97**	**77**	....	....	97	77
N. Louisiana	11	10	3	2	....	....	**14**	**12**	....	....	14	12
S. Louisiana	76	62	7	3	....	....	**83**	**65**	....	....	83	65
Michigan	....	....	1	2	....	....	**1**	**2**	....	1	1	3
Mississippi	33	29	5	4	....	....	**38**	**33**	1	2	39	35
Montana	25	12	2	....	....	....	**27**	**12**	....	....	27	12
Nebraska	2	6	....	....	....	....	**2**	**6**	....	....	2	6
Nevada	1	2	....	1	....	....	**1**	**3**	....	....	1	3
New Mexico	41	28	7	4	1	1	**49**	**33**	....	....	49	33
North Dakota	8	8	....	1	....	....	**8**	**9**	....	....	8	9
Oklahoma	24	20	....	....	1	....	**25**	**20**	....	....	25	20
South Dakota	....	....	....	....	....	....	....	....	....	....	....	....
Texas	143	134	17	14	4	2	**164**	**150**	6	6	170	156
Texas (North)	9	11	....	2	....	....	**9**	**13**	1	....	10	13
Texas (East)	17	14	6	1	....	....	**23**	**15**	....	1	23	16
Texas (S. East)	32	32	3	1	....	....	**35**	**33**	....	....	35	33
Texas (S. West)	35	24	1	1	....	....	**36**	**25**	....	....	36	25
Texas (W. Cent.)	2	3	2	....	....	....	**4**	**3**	2	1	6	4
Texas (West)	48	50	5	9	4	2	**57**	**61**	3	4	60	65
Utah	31	34	9	6	2	2	**42**	**42**	7	5	49	47
Wyoming	23	23	....	....	....	....	**23**	**23**	....	....	23	23
Total	477	420	59	42	8	6	**544**	**468**	23	24	567	492

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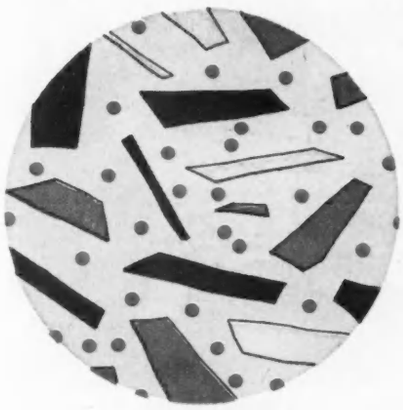
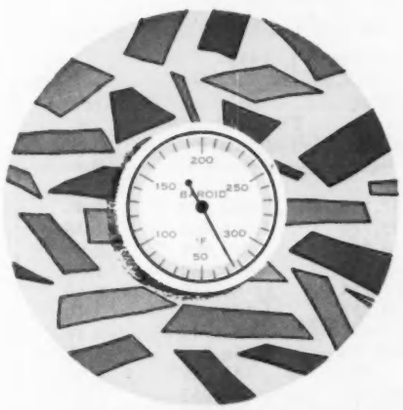
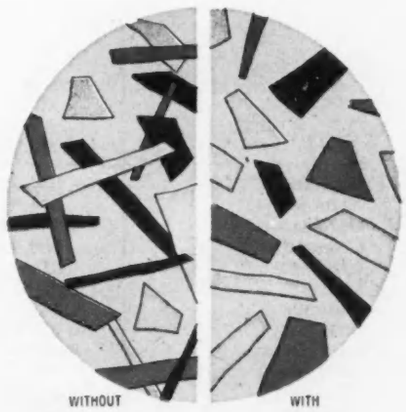


MAINTAINS GOOD EMULSIONS

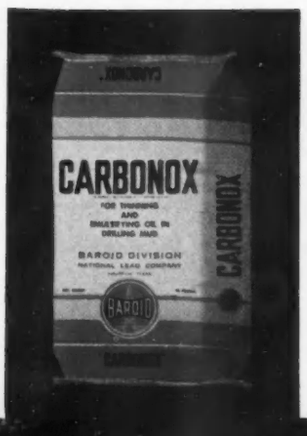
THINS MUD WITHOUT DILUTION



KEEPS MUD STABLE AT HIGH TEMPERATURE



RESISTS EFFECTS OF SALT WATER



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Hydrocarbon reserves down in top states . . .

More than 27 billion barrels or 80.7 percent of all U.S. liquid hydrocarbon reserves were located in four states at the start of 1958.

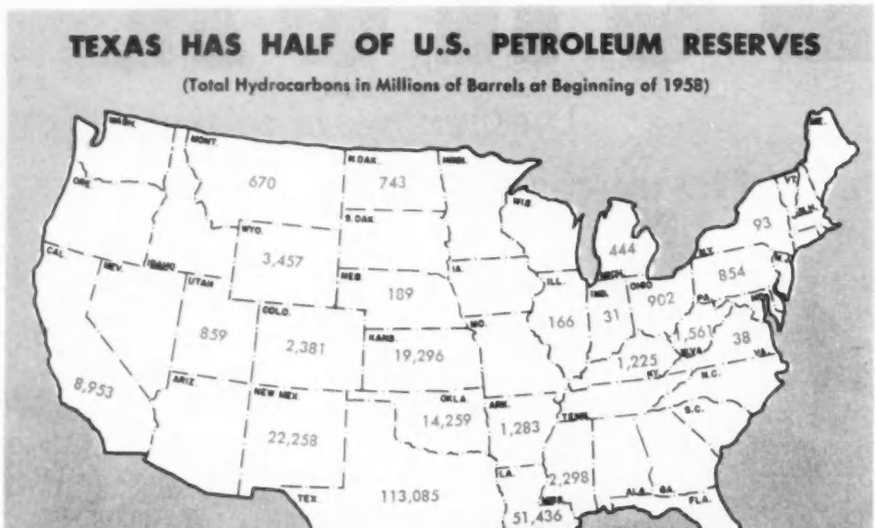
Texas reported 17.8 billion barrels of reserves (49.5 percent), nearly four times more than the second ranking state. However, Texas' total reserves were 336 million barrels below the 1957 total. The crude total dropped 228 million barrels, while natural gas liquids decreased 108 million barrels.

Louisiana had the second largest volume of proved unproduced reserves among the states—4.9 billion barrels. Crude reserves increased 420 million barrels for a new total of 3.9 billion at the start of 1958, and the state's natural gas liquids reserves increased 4 million barrels to 1.019 billion.

California followed closely behind Louisiana with 4.1 billion barrels of liquid hydrocarbon reserves.

Wyoming was the fifth ranking state with 1.47 billion barrels of reserves, followed by New Mexico with 1.15 billion barrels and Kansas with 1.14 billion barrels.

For the first time in several years, the four leading states reported a decrease in total liquid hydrocarbon reserves. Crude reserves dropped 125 million barrels, while natural gas liquids decreased 123 million barrels.



Estimated Proved Reserves of Crude Oil, Natural Gas Liquids and Total Liquid Hydrocarbons in U. S., by States, at Beginning of 1958 and 1957

(Source: American Petroleum Institute)

THOUSANDS OF BARRELS

STATE	JANUARY 1, 1958 Crude Oil	Natural Gas Liquids	Total Liquid Hydrocarbons	Percent of U.S.	JANUARY 1, 1957 Crude Oil	Natural Gas Liquids	Total Liquid Hydrocarbons
Alabama	34,409	‡	34,409	0.09	37,537	‡	37,537
Arkansas	304,959	37,140	342,099	0.95	317,726	42,467	360,193
*California	3,759,754	305,729	4,065,483	11.30	3,771,357	311,728	4,083,085
Colorado	309,939	10,965	320,904	0.89	363,750	11,545	375,295
Illinois	654,746	11,793	666,539	1.85	700,000	16,772	716,772
Indiana	66,736	114	66,850	0.19	67,728	133	67,861
Kansas	947,484	189,155	1,136,639	3.16	992,211	171,615	1,163,826
Kentucky	138,040	5,707	143,747	0.40	148,442	7,251	155,693
*Louisiana	3,857,569	1,019,198	4,876,767	13.55	3,675,419	1,014,942	4,690,361
Michigan	49,492	1,237	50,729	0.14	55,312	1,068	56,380
Mississippi	359,550	54,401	413,951	1.15	368,205	56,003	424,208
Montana	319,991	7,805	327,796	0.91	331,414	8,145	339,559
Nebraska	63,059	7,135	70,194	0.19	62,861	6,054	69,365
New Mexico	831,744	320,548	1,152,292	3.21	835,437	414,099	1,249,536
New York	37,533	.....	37,533	0.10	40,196	.....	40,196
North Dakota	258,221	22,700	280,921	0.78	195,834	‡	195,834
Ohio	68,150	1,810	69,960	0.20	63,575	1,669	65,244
Oklahoma	1,941,521	342,643	2,284,164	6.34	2,009,798	355,588	2,365,386
Pennsylvania	126,490	3,460	129,950	0.36	134,700	3,167	137,867
*Texas	14,555,140	3,271,617	17,826,757	49.54	14,783,139	3,379,889	18,163,028
Utah	140,034	91,000	140,125	0.39	61,435	95	61,530
West Virginia	52,545	22,912	75,457	0.21	51,221	26,741	77,962
Wyoming	1,419,718	51,165	1,470,883	4.08	1,363,164	53,874	1,417,038
†Miscellaneous	3,581	35	3,616	0.02	4,188	19,037	23,225
Total United States	30,300,405	5,687,360	35,987,765	100.0	30,434,649	5,902,332	36,336,981

* Includes off shore reserves.
† Miscellaneous includes: Crude in Ariz., Fla., Mo., Nev., S.D., Tenn., Va., and Wash.; Natural Gas Liquids in Ala. and Fla.
‡ Included in Miscellaneous.

Drilling continues to prove up less reserves

LESS NEW U. S. crude oil reserves were proved up in relation to drilling effort during 1957 than at any time in modern history. The trend picture in brief:

- 2.42 billion barrels of new crude reserves were proved up in 1957, 550 million barrels less than the 2.97 billion barrels found in 1956.
- 46,283 barrels of new crude reserves were found per new well drilled, compared with 51,827 barrels the previous year.
- 11 barrels of reserves were found per foot drilled, compared with 13 barrels in 1956.
- 88,114 barrels of reserves were found per new *oil* well completed, compared with 97,070 barrels in 1956.

All of the 1957 figures are at a record low for modern oil industry operations, due principally to the general slowdown in development well and wildcat drilling.

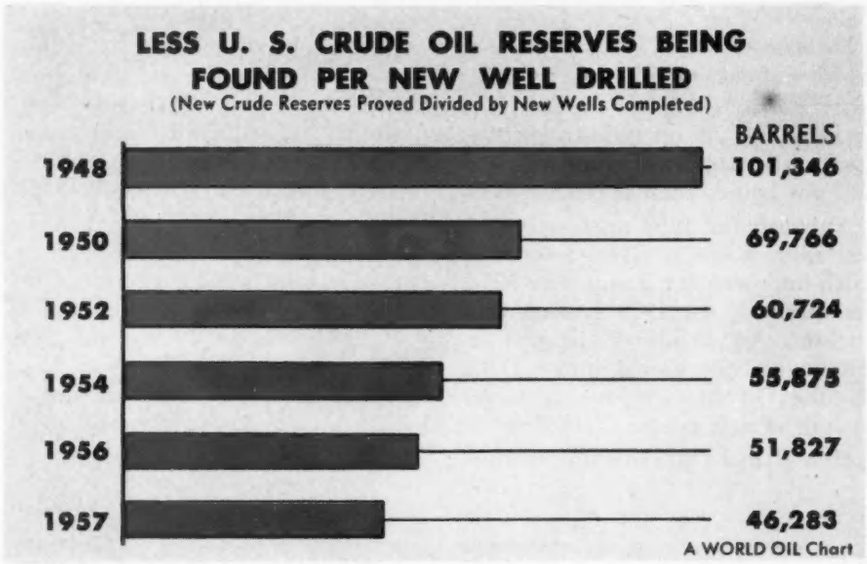
The highest relationship of new crude oil reserves found to drilling activity since the 1937-41 period occurred in 1948 and 1951. In 1948, almost 3.8 billion barrels of new oil reserves were proved up, representing 101,346 barrels for each well drilled in search of production.

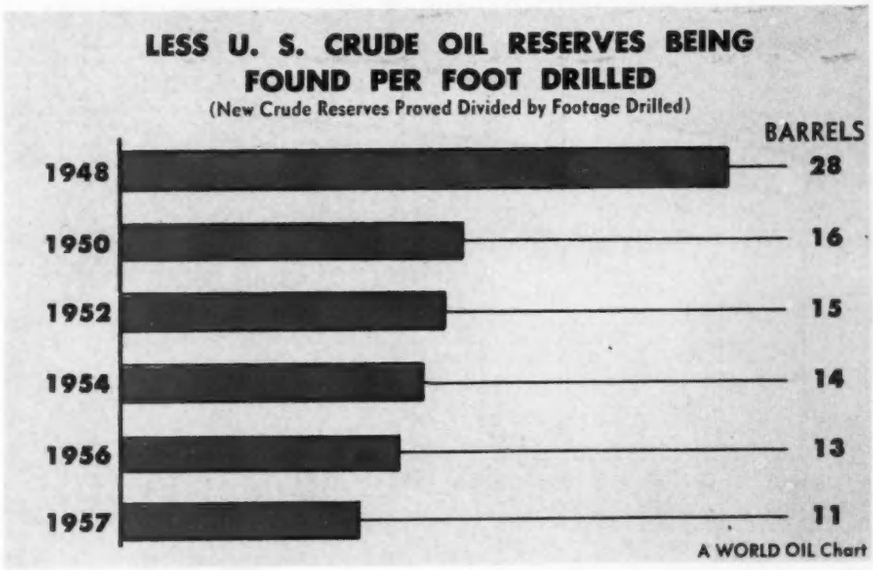
Data are not available for 1958 because the American Petroleum Institute Reserves committee has not yet published reserves figures for the year.

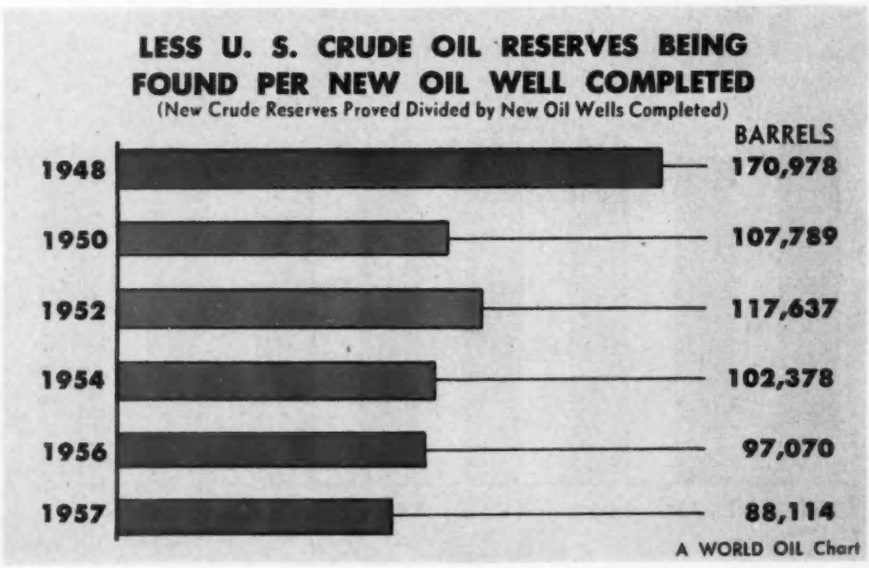
Crude Oil Reserves Developed in U. S. in Relationship to Drilling Effort

	Barrels Per Total Well Drilled	Barrels Per Foot Drilled	Barrels Per Oil Well Drilled
1937–1941	89,171	28	131,173
1942–1946	86,815	25	154,670
1947	79,287	22	139,929
1948	101,346	28	170,978
1949	84,308	23	148,860
1950	60,766	16	107,789
1951	99,032	25	187,572
1952	60,724	14	117,637
1953	68,325	17	130,535
1954	55,875	14	102,378
1955	51,999	13	94,202
1956	5 ,827	13	97,070
1957	46,283	11	88,114

Total wells drilled include all new wells drilled in search of production and completed as oil, gas, distillate or dry holes. Oil wells drilled include all new wells completed as producing oil wells during the year.







Oil reserves show first drop in 14 years

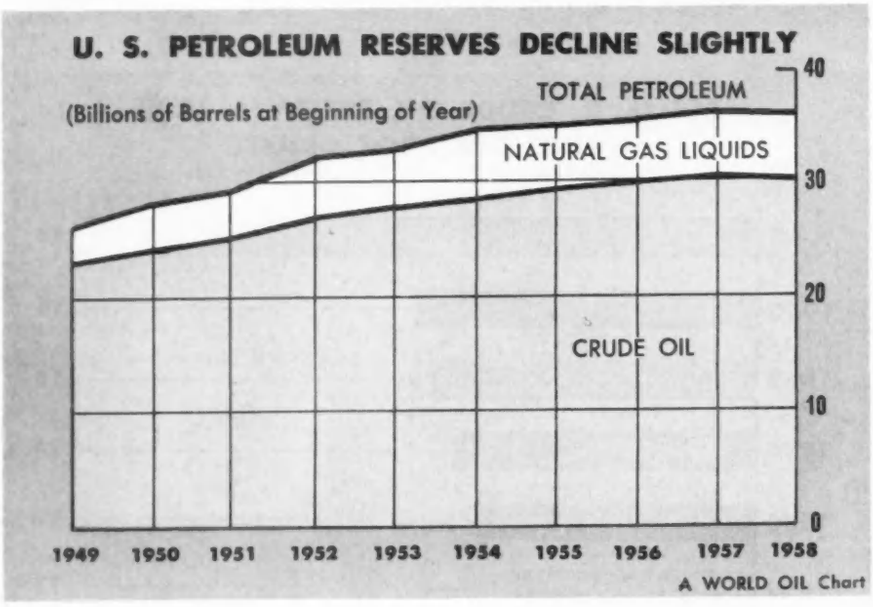
DECREASED DRILLING activity took its toll of total liquid hydrocarbon reserves during 1957. For the first time in 14 years, the oil industry proved up a smaller supply of crude and natural gas liquids than it produced.

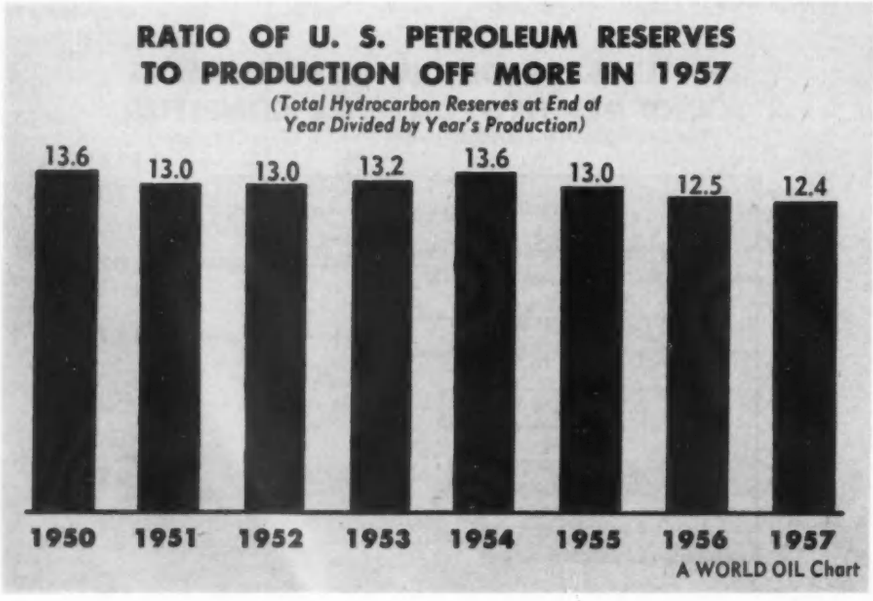
Although the 1958 reserve-production ratio is not expected to show much improvement, if any, over 1957, the outlook for 1959 is somewhat brighter. An expected increase in drilling activity should improve the chances of discovering a larger amount of new reserves.

U.S. proved petroleum reserves totaled slightly less than 36 billion barrels at the beginning of 1958, a decrease of 349.2 million barrels (0.97 percent) from the same period in 1957. This was the first decrease since an 18.6 million barrel deficit was reported in 1943.

Crude accounted for 30.3 billion barrels of total liquid hydrocarbon reserves at the start of 1958, a decline of 134.2 million barrels from the same 1957 period. Natural gas liquid reserves decreased nearly 215 million barrels to a 5.7 billion barrel total. Thus, at current production rates, the U.S. has a 12.4 year supply of proved recoverable liquid hydrocarbon reserves, the lowest ratio since 1948.

The above figures are the latest available. Reserve estimates for the end of 1958 will not become available from the American Petroleum Institute until next month. However, the double-barreled impact of excessive imports and the recession during 1958 is expected to result in another decrease in the reserve-production ratio. If there is another decrease, it will be the first time in 25 years that production has outpaced the finding of new reserves for two successive years.





New discoveries decline. In contrast to 1956 when the volume of new liquid hydrocarbon reserves was at a three-year high (3.8 billion barrels), the total discovered during 1957 (2.6 billion barrels) was the smallest since 1945.

Because of the many uncertain elements involved in finding new fields and pools, it is natural that there should be great variation in the quantity of new supply found from year to year. However, when total wells drilled drop as sharply as they did in 1957, the chances of developing new proved reserves are reduced considerably.

During the past ten years, the volume of liquid hydrocarbons found annually has varied from the low of 2.6 billion barrels in 1957 to a high of 5.1 billion barrels in 1951.

New gas pools set record. The total of new crude reserves found during 1957 dropped to a 12-year low of 2.4 billion barrels. New reserves of natural gas liquids proved up last year (137.4 million barrels) dropped to a three-year low. However, discoveries of new pools and fields added one of the largest volumes of natural gas liquids to total reserves (128.5 million barrels) in the industry's history.

Offsetting the high discovery rate of natural gas liquid pools and fields was a record low revision and extension total of 8.9 million barrels. In comparison, 1956 total revisions and extensions accounted for 715.8 million barrels of new natural gas liquid reserves proved up during the year.

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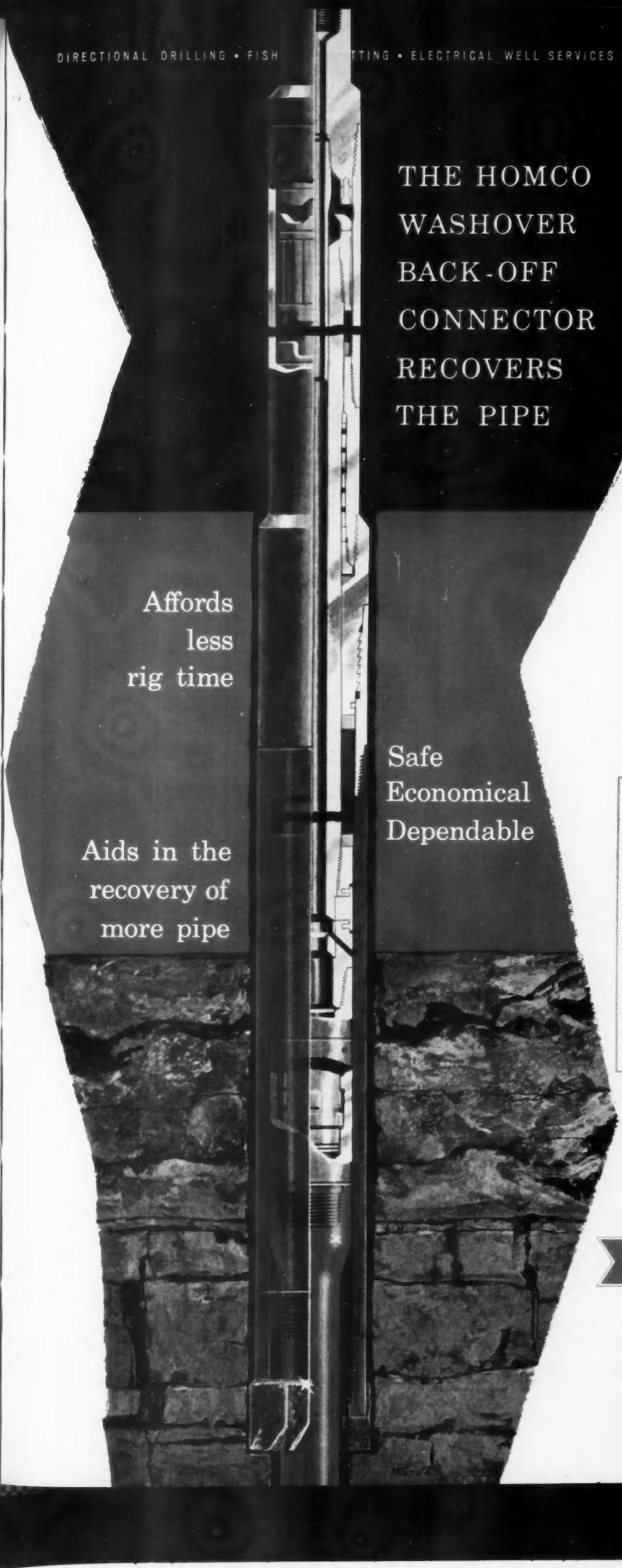

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WRITE FOR TECHNICAL BULLETIN NO. 27-1-1

Estimated Proved Reserves of Crude Oil, Natural Gas Liquids, and Total Liquid Hydrocarbons in the United States, by Years

(Sources: Crude oil by American Petroleum Institute; natural gas liquids and total liquid hydrocarbons by API and American Gas Association. Reserves at end of 1936 and for subsequent years estimated by committees on reserves; earlier data estimated by API department of statistics but not based on geological surveys.)

(THOUSANDS OF BARRELS)

YEAR	Estimated Proved Reserves Beginning of Year	CHANGES IN RESERVES DURING YEAR: (ADDITION) RESERVES PROVED DURING YEAR: Revisions of Previous Estimates	Extensions to Old Pools	Total Revisions and Extensions (Col. 2+3)	New Pools Discovered During Year	Total Reserves Proved During Year (Cols. 4+5)	(Deduction) *Production During Year	(Net Change) Increase or Decrease (Col. 6—Col. 7)	Estimated Proved Reserves at End of Year (Col. 1+Col. 8)	Ratio of Year-End Reserves to Year's Prod. (Year's Supply) (Col. 9÷Col. 7)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Crude Oil (Incl. Cycle Plant and Lease Condensate)										
1857-1899	0	.....	.....	.....	.....	†3,439,984	†939,984	†+2,500,000	2,500,000	‡43.8
1900	2,500,000	.....	.....	.....	.....	463,621	63,621	+ 400,000	2,900,000	45.6
1901	2,900,000	.....	.....	.....	.....	169,389	69,389	+ 100,000	3,000,000	43.2
1902	3,000,000	.....	.....	.....	.....	288,767	88,767	+ 200,000	3,200,000	36.0
1903	3,200,000	.....	.....	.....	.....	300,461	100,461	+ 200,000	3,400,000	33.8
1904	3,400,000	.....	.....	.....	.....	317,081	117,081	+ 200,000	3,600,000	30.7
1905	3,600,000	.....	.....	.....	.....	334,717	134,717	+ 200,000	3,800,000	28.2
1906	3,800,000	.....	.....	.....	.....	126,494	126,494	.....	3,800,000	30.0
1907	3,800,000	.....	.....	.....	.....	266,095	166,095	+ 100,000	3,900,000	23.5
1908	3,900,000	.....	.....	.....	.....	278,527	178,527	+ 100,000	4,000,000	22.4
1909	4,000,000	.....	.....	.....	.....	383,171	183,171	+ 200,000	4,200,000	22.9
1910	4,200,000	.....	.....	.....	.....	509,557	209,557	+ 300,000	4,500,000	21.5
1911	4,500,000	.....	.....	.....	.....	720,449	220,449	+ 500,000	5,000,000	22.7
1912	5,000,000	.....	.....	.....	.....	622,935	222,935	+ 400,000	5,400,000	23.8
1913	5,400,000	.....	.....	.....	.....	348,466	284,466	+ 100,000	5,500,000	22.1
1914	5,500,000	.....	.....	.....	.....	165,763	265,763	— 100,000	5,400,000	19.9
1915	5,400,000	.....	.....	.....	.....	381,104	281,104	+ 100,000	5,500,000	19.6
1916	5,500,000	.....	.....	.....	.....	700,767	300,767	+ 400,000	5,900,000	19.6
1917	5,900,000	.....	.....	.....	.....	335,316	335,316	.....	5,900,000	17.6
1918	5,900,000	.....	.....	.....	.....	655,928	355,928	+ 300,000	6,200,000	17.4
1919	6,200,000	.....	.....	.....	.....	878,367	378,367	+ 500,000	6,700,000	17.7
1920	6,700,000	.....	.....	.....	.....	942,929	442,929	+ 500,000	7,200,000	16.3
1921	7,200,000	.....	.....	.....	.....	1,072,183	472,183	+ 600,000	7,800,000	16.5
1922	7,800,000	.....	.....	.....	.....	357,531	557,531	— 200,000	7,600,000	13.6
1923	7,600,000	.....	.....	.....	.....	732,407	732,407	.....	7,600,000	10.4
1924	7,600,000	.....	.....	.....	.....	613,940	713,940	— 100,000	7,500,000	10.5
1925	7,500,000	.....	.....	.....	.....	1,763,743	763,743	+1,000,000	8,500,000	11.1
1926	8,500,000	.....	.....	.....	.....	1,070,874	770,874	+ 300,000	8,800,000	11.4
1927	8,800,000	.....	.....	.....	.....	2,601,129	901,129	+1,700,000	10,500,000	11.7
1928	10,500,000	.....	.....	.....	.....	1,401,474	901,474	+ 500,000	11,000,000	12.2
1929	11,000,000	.....	.....	.....	.....	3,207,323	1,007,323	+2,200,000	13,200,000	13.1
1930	13,200,000	.....	.....	.....	.....	1,298,011	898,011	+ 400,000	13,600,000	15.1
1931	13,600,000	.....	.....	.....	.....	251,081	851,081	— 600,000	13,000,000	15.3
1932	13,000,000	.....	.....	.....	.....	85,159	785,159	— 700,000	12,300,000	15.7
1933	12,300,000	.....	.....	.....	.....	605,656	905,656	— 300,000	12,000,000	13.3
1934	12,000,000	.....	.....	.....	.....	1,085,065	908,065	+ 177,000	12,177,000	13.4
1935	12,177,000	.....	.....	.....	.....	1,219,596	996,596	+ 223,000	12,400,000	12.4
1936	12,400,000	.....	.....	.....	.....	1,763,087	1,099,687	+ 663,400	13,063,400	11.9
1937	13,063,400	.....	.....	2,792,790	928,742	3,721,532	1,277,664	+2,433,868	15,507,268	12.1
1938	15,507,268	.....	.....	2,243,571	810,493	3,054,064	1,213,186	+1,840,878	17,348,146	14.3
1939	17,348,146	.....	.....	2,058,455	340,667	2,399,122	1,264,256	+1,134,866	18,483,012	14.6
1940	18,483,012	.....	.....	1,607,012	286,338	1,893,350	1,351,847	+ 541,503	19,024,515	14.1
1941	19,024,515	.....	.....	1,538,989	429,974	1,968,963	1,404,182	+ 564,781	19,589,296	13.9
1942	19,589,296	.....	.....	1,618,925	260,051	1,878,976	1,385,479	+ 493,497	20,082,793	14.5
1943	20,082,793	.....	.....	1,202,368	282,418	1,484,786	1,503,427	— 18,641	20,064,152	13.3
1944	20,064,152	.....	.....	1,556,192	511,308	2,067,500	1,678,421	+ 389,079	20,453,231	12.2
1945	20,453,231	+ 248,891	1,441,424	1,690,315	419,984	2,110,299	1,736,717	+ 373,582	20,826,813	12.0
Crude Oil Only:										
1945	19,784,530	.....	.....	.....	.....	1,870,971	1,713,655	+ 157,316	19,941,846	11.6
1946	19,941,846	+1,254,705	1,158,923	2,413,628	244,434	2,658,062	1,726,348	+ 931,714	20,873,560	12.1
1947	20,873,560	+ 749,278	1,269,862	2,019,140	445,430	2,464,570	1,850,445	+ 614,125	21,487,685	11.6
1948	21,487,685	+1,958,853	1,439,873	3,398,726	396,481	3,795,207	2,002,448	+1,792,759	23,280,444	11.6
1949	23,280,444	+ 603,566	1,693,862	2,297,428	890,417	3,187,845	1,818,800	+1,369,045	24,649,489	13.6
1950	24,649,489	+ 663,378	1,334,391	1,997,769	564,916	2,562,685	1,943,776	+ 618,909	25,268,398	13.0
1951	25,268,328	+1,776,110	2,248,588	4,024,698	389,256	4,413,954	2,214,321	+2,199,633	27,468,031	12.4
1952	27,468,031	+ 743,729	1,509,131	2,252,860	496,428	2,749,288	2,256,765	+ 492,523	27,960,554	12.4
1953	27,960,554	+1,264,832	1,439,618	2,704,450	591,680	3,296,130	2,311,856	+ 984,274	28,944,828	12.5
1954	28,944,828	+ 537,788	1,749,443	2,287,231	585,806	2,873,037	2,257,119	+ 615,918	29,560,746	13.1
1955	29,560,746	+ 696,114	1,697,653	2,393,767	476,957	2,870,724	2,419,300	+ 451,424	30,012,170	12.4
1956	30,012,170	+ 804,803	1,702,211	2,507,114	467,222	2,974,336	2,551,857	+ 422,479	30,434,649	11.9
1957	30,434,649	+ 465,421	1,543,182	2,008,603	416,197	2,424,800	2,559,044	— 134,244	30,300,405	11.8
Natural Gas Liquids:										
1946	.....	.....	.....	.....	.....	.....	.....	.....	3,163,219	.....
1947	3,163,219	.....	.....	192,237	59,301	251,538	160,782	+ 90,756	3,253,975	20.2
1948	3,253,975	.....	.....	405,874	64,683	470,557	183,749	+ 286,808	3,540,783	19.3
1949	3,540,783	.....	.....	294,211	92,565	386,776	198,547	+ 188,229	3,729,012	18.8
1950	3,729,012	.....	.....	707,879	58,183	766,062	227,411	+ 538,651	4,267,663	18.8
1951	4,267,663	.....	.....	648,497	75,494	723,991	267,052	+ 456,939	4,724,602	17.7
1952	4,724,602	.....	.....	475,170	81,668	556,838	284,789	+ 272,049	4,996,651	17.5
1953	4,996,651	.....	.....	648,047	95,922	743,969	302,698	+ 441,271	5,437,922	18.0
1954	5,437,922	.....	.....	20,830	86,520	107,350	300,815	— 193,465	5,244,457	17.4
1955	5,244,457	.....	.....	447,160	67,348	514,508	320,400	+ 194,108	5,438,565	17.0
1956	5,438,565	.....	.....	715,764	94,056	809,820	346,053	+ 463,767	5,902,332	17.1
1957	5,902,332	.....	.....	8,884	128,508	137,392	352,364	— 214,972	5,687,360	16.1
Total Liquid Hydrocarbons:										
1946	.....	.....	.....	.....	.....	.....	.....	.....	24,036,779	.....
1947	24,036,779	.....	.....	2,211,377	564,731	2,776,108	2,011,227	+ 704,881	24,741,660	12.3
1948	24,741,660	.....	.....	3,804,600	461,164	4,265,764	2,186,197	+2,079,567	26,821,227	12.3
1949	26,821,227	.....	.....	2,591,639	982,982	3,574,621	2,017,347	+1,557,274	28,378,501	14.1
1950	28,378,501	.....	.....	2,705,648	623,099	3,328,747	2,171,187	+1,157,560	29,536,061	13.6
1951	29,536,061	.....	.....	4,673,195	464,750	5,137,945	2,481,373	+2,656,572	32,192,633	13.0
1952	32,192,633	.....	.....	2,728,030	578,096	3,306,126	2,541,554	+ 764,572	32,957,205	13.0
1953	32,957,205	.....	.....	3,352,497	687,602	4,040,099	2,614,554	+1,425,545	34,382,750	13.2
1954	34,382,750	.....	.....	2,308,061	672,326	2,980,387	2,557,934	+ 422,453	34,805,203	13.6
1955	34,805,203	.....	.....	2,840,927	544,305	3,385,232	2,739,700	+ 645,532	35,450,735	13.0
1956	35,450,735	.....	.....	3,222,878	561,278	3,784,156	2,897,910	+ 886,246	36,336,981	12.5
1957	36,336,981	.....	.....	2,017,487	544,705	2,562,192	2,911,408	— 349,216	35,987,765	12.4

* Production for 1936 and previous years from U. S. Bureau of Mines: production for 1937 and each subsequent year compiled by API (and AGA) committees on basis of 11 months actual and December estimated. Small variance of these figures from actual production as later reported is compensated by revision when reserves report for succeeding year is compiled.

† During years 1857-1899. ‡ Based on production of 57,071 thousand barrels in 1899.

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Five states have 90 percent of gas reserves

EXCEPT FOR a few minor percentage shifts in a number of areas, the location of natural gas reserves has shown little change in recent years.

Five states—Texas, Louisiana, New Mexico, Kansas, and Oklahoma—account for about 90 percent of total U.S. gas reserves of almost 247 trillion cubic feet. And slightly more than half of that amount is located in Texas. Eighteen other states account for most of the remaining U.S. reserves.

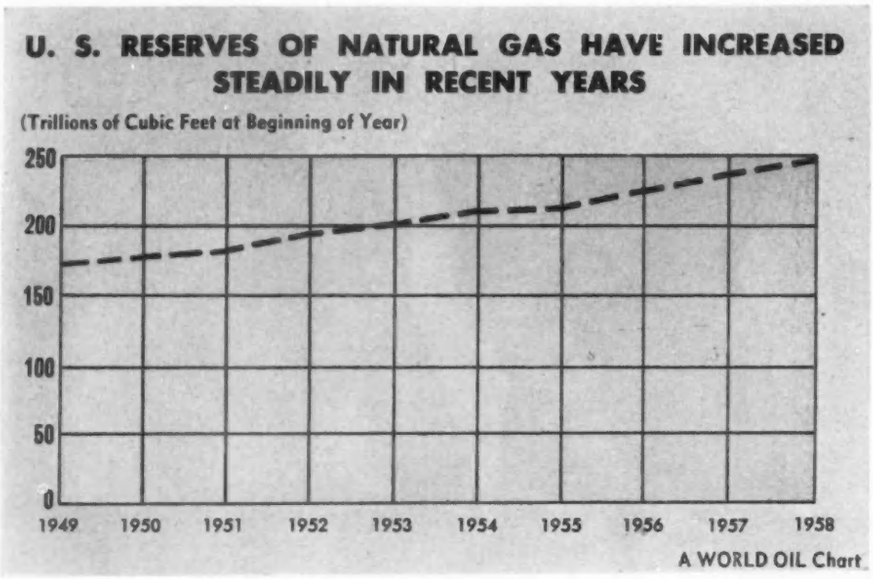
Report by states. At the beginning of 1958, Texas had slightly more than 113 trillion cubic feet of natural gas reserves, well above twice the reserves of the next highest state. Texas' total accounted for 45.9 percent of all the U.S. gas reserves.

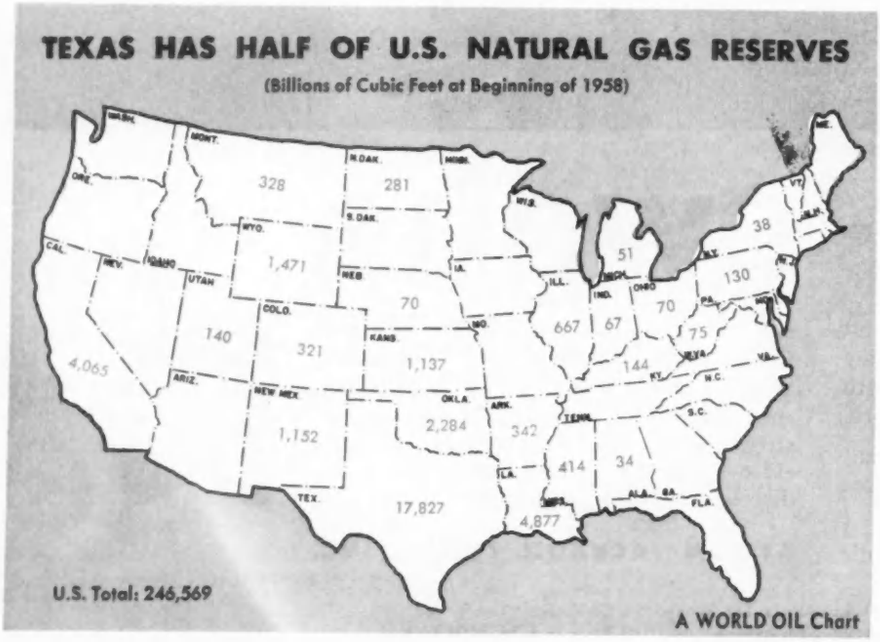
Although Texas' share of the U.S. total declined 1.55 percent from 1957, the state's reserves grew 356 billion cubic feet.

Louisiana again recorded the second largest reserves volume—51.4 trillion cubic feet, or almost 21 percent of the U.S. total. This reflected an increase of 6.4 trillion cubic feet from 1957, when the state held a 19 percent share in total U.S. reserves.

New Mexico was the third ranking state with 22.3 trillion cubic feet, or 9 percent of the national total.

The remaining leading gas reserve states reported the following total reserves at the beginning of 1958: Kansas, 19.3 trillion cubic feet and 7.8 percent of the U.S. total; Oklahoma, 14.3 trillion cubic feet and 5.8 percent.





Estimated Proved Reserves of Natural Gas in U. S., by States, at Beginning of 1958
(Source: AGA . . . Millions of Cubic Feet—14.65 psia, at 60 Deg. F.)

STATE	Million Cu. Ft.	% of U.S.
Arkansas	1,283,022	0.52
*California	8,952,893	0.63
Colorado	2,380,679	0.96
Illinois	166,372	0.07
Indiana	30,952	0.01
Kansas	19,295,978	7.83
Kentucky	1,225,045	0.50
*Louisiana	51,435,954	20.86
Michigan	444,028	0.18
Mississippi	2,297,740	0.93
Montana	670,450	0.27
Nebraska	189,339	0.08
New Mexico	22,258,009	9.02
New York	93,382	0.04
North Dakota	743,432	0.30
Ohio	901,814	0.37
Oklahoma	14,259,480	5.78
Pennsylvania	853,595	0.35
*Texas	113,084,518	45.86
Utah	859,294	0.35
Virginia	37,521	0.01
West Virginia	1,560,930	0.64
Wyoming	3,457,433	1.40
†Miscellaneous	87,395	0.04
Total U.S.	246,569,255	100.0

* Includes off-shore reserves.
† Includes Ala., Ariz., Fla., Md., Mo., Va.

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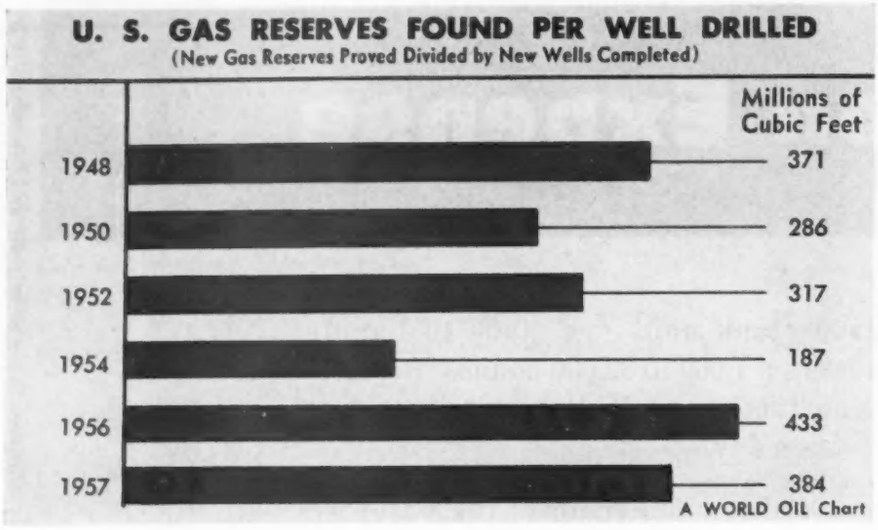
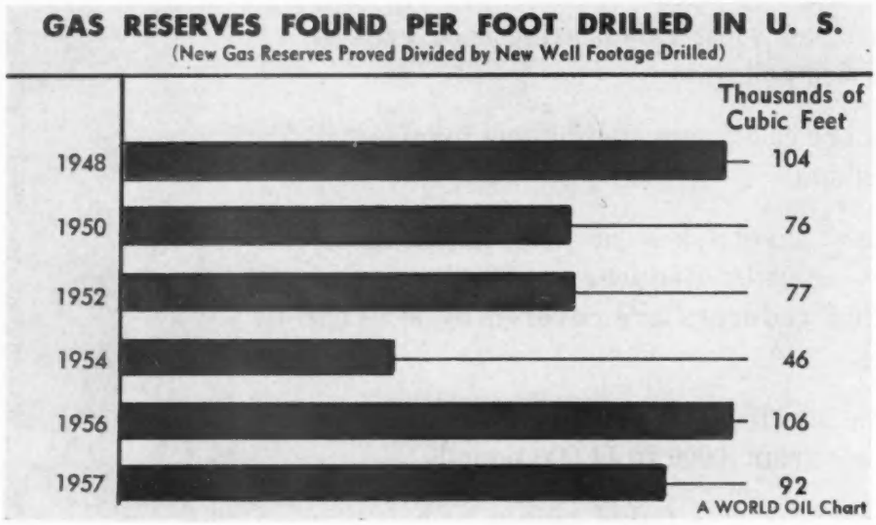
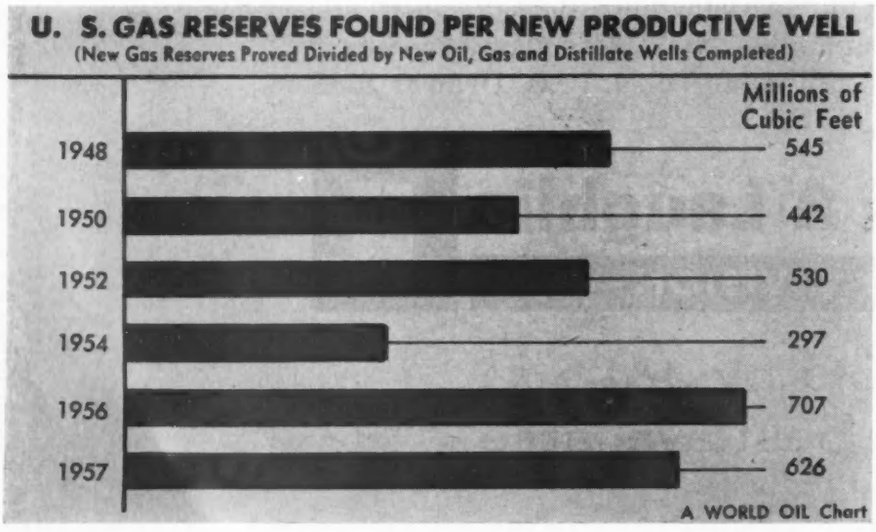
Gas Discovery-drilling ratio reverses trend







ENDING A TWO-YEAR trend in which an increasing amount of new natural gas reserves were developed in the United States in proportion to drilling activity, 1957 concluded with total new natural gas reserves discoveries of slightly more than 20 trillion cubic feet.

This represents 384 million cubic feet of new reserves for each new well drilled—49 million cubic feet less than in 1956.

It is indicated that 626 million cubic feet of new reserves were found in 1957 for each new *productive* well that was completed. This reflected a decrease of 81 million from the 1956 total of 707 million cubic feet for each new productive well completed.

With these declines, the amount of new gas reserves developed during 1957 averaged 14,000 cubic feet less for each foot of hole drilled as compared with 1956. During that year, an average of 106,000 cubic feet of new reserves were found for each foot of hole drilled. The average was 92,000 cubic feet in 1957.

Even with the decrease recorded for 1957, the year was only slightly below the 1955 level. During that year, new reserves per well drilled averaged 399 million cubic feet, compared with 187 million in 1954, the lowest year in more than a decade.

Natural Gas Reserves Developed Annually in U. S. in Relationship to Drilling Effort

YEAR	Millions of Cu. Ft. Per Well Drilled	Thousands of Cu. Ft. Per Foot Drilled	Millions of Cu. Ft. Per Productive Well
1946	630	181	902
1947	353	100	515
1948	371	104	545
1949	335	93	509
1950	286	76	442
1951	360	92	593
1952	317	77	530
1953	424	104	694
1954	187	46	297
1955	399	97	636
1956	433	106	707
1957	384	92	626

Wells drilled include all wells drilled in search of production and completed as oil, gas, distillate and dry holes. Productive wells includes all wells completed in year as oil, gas or distillate producers.

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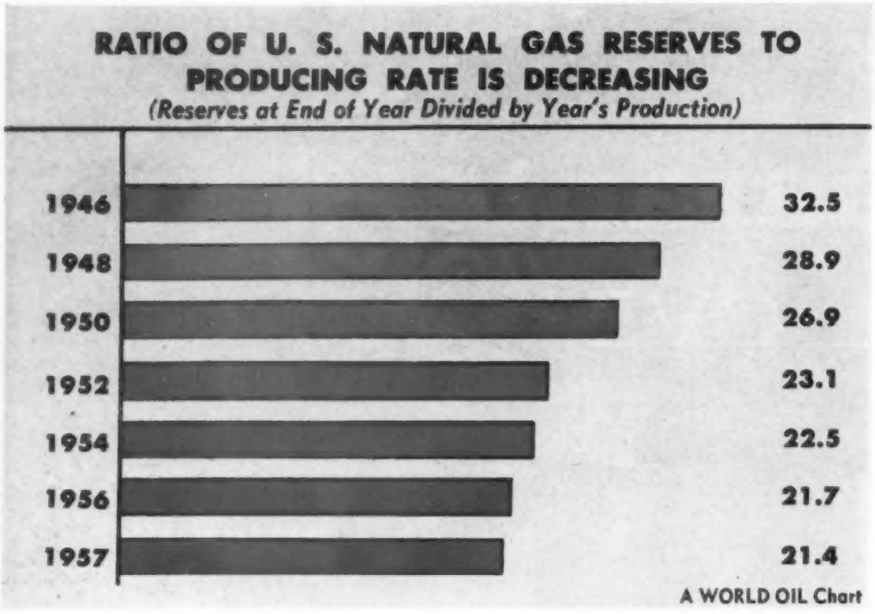


Gas reserves increasing but at lower rate than gas use

A DROP IN TOTAL natural gas reserves proved during 1957, coupled with the continuing rapid rate of increase in demand, again points up the fact that the U.S. production rate is steadily outpacing gains in reserves.

As a result, the ratio of reserves to production still is declining as it has continued to do over the years. For example, at the beginning of 1958, known gas reserves were 21.4 times larger than the amount of natural gas produced during the previous year. This compares with a 21.7-to-1 ratio of reserves to production at the beginning of 1957. These two ratios show a marked decrease from the 24.3-to-1 ratio at the beginning of 1952 and the 29.5-to-1 ratio at the start of 1948.

At the beginning of 1958, the United States had an estimated proved natural gas reserve of 246.6 trillion cubic feet. This amounted to 8.8 trillion cubic feet more than that reported at the start of 1957. In comparison, at the beginning of 1957 the United States recorded an estimated 237.8 trillion cubic feet of proved gas reserves— 14 trillion cubic feet more than were reported at the start of 1956 and the largest increase in total reserves since the end of World War II. U.S. reserves totaled only 199.7 trillion cubic feet five years ago and 165.9 trillion cubic feet 10 years ago.

Reserve figures for the beginning of 1959 are not yet available. The Reserve Committee of the American Gas Association does not release its annual report until March.

Reserves outlook optimistic. Discovery rates recorded in recent years indicate the ability of the industry to continue finding large volumes of additional reserves. However, to continue this trend, producers must be allowed the incentives necessary to make the costly effort worthwhile from an economic standpoint. This takes on an added importance in view of burgeoning demand for natural gas.

As compared with the discovery of 20.1 trillion cubic feet in 1957, the discovery of almost 24.9 trillion cubic feet of new natural gas reserves during 1956 accounted for the largest single discovery year in history.

Changes in U. S. Reserves of Natural Gas, by Years, Since 1945

Source: AGA . . . Data in millions of cubic feet, 14.65 psi at 60° F.

YEAR	Estimated Proved Reserves Beginning of Year	CHANGES IN RESERVES DURING YEAR: (Add.) Reserves Proved: Extensions and Revisions	Discoveries of New Fields and New Pools in Old Fields	Total Reserves Proved During Year (Cols.2+3)	(Add or Deduct) Net Change in Storage	(Deduct) Net Production During Year	(Net Change) Increase or Decrease (Cols. 4+5—6)	Estimated Proved Reserves End of Year (Cols. 1+7)	Ratio of Year-End Reserves to Year's Prod. (Year's Supply) Col. 8÷Col. 6
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1945	.....	.....	.....	.....	.....	.....	.....	147,789,367	....
1946	147,789,367	.....	.....	17,729,152	*	4,942,617	+12,786,535	160,575,901	32.5
1947	160,575,901	7,570,654	3,410,170	10,980,824	*	5,629,811	+ 5,351,013	165,926,914	29.5
1948	165,926,914	9,769,483	4,129,089	13,898,572	+ 51,482	6,007,628	+ 7,942,426	173,869,340	28.9
1949	173,869,340	8,061,429	4,612,870	12,674,299	+ 82,746	6,245,041	+ 6,512,004	180,381,344	28.9
1950	180,381,344	9,172,381	2,877,351	12,049,732	+ 54,301	6,892,678	+ 5,211,355	185,592,699	26.9
1951	185,592,699	13,013,606	3,039,385	16,052,991	+132,751	7,966,941	+ 8,218,801	193,811,500	24.3
1952	193,811,500	8,934,470	5,411,043	14,345,513	+198,850	8,639,638	+ 5,904,725	199,716,225	23.1
1953	199,716,225	13,371,355	7,081,661	20,453,016	+516,431	9,238,540	+11,730,907	211,447,132	22.9
1954	211,447,132	4,632,309	4,966,894	9,599,203	+ 90,906	9,426,509	+ 263,600	211,710,732	22.5
1955	211,710,732	16,298,125	5,719,069	22,017,194	+ 87,637	10,118,118	+11,986,713	223,697,445	22.1
1956	223,697,445	19,214,604	5,636,476	24,851,080	+133,970	10,907,926	+14,077,124	237,774,569	21.7
1957	237,774,569	11,118,319	8,998,993	20,117,312	179,733	11,502,359	+ 8,794,686	246,569,255	21.4

* Not estimated.

Estimates of Proved Reserves of Natural Gas in U. S., by Years, Since 1918

(Production from Bureau of Mines)

YEAR	Reserves End of Year (Billion Cubic Feet)	Authority for Estimate of Reserves	Net Production (Billion Cubic Feet)	Ratio Reserve to Annual Prod.
1918	15,000	E. Holley Poe[1]	721	20.8
1919	15,000	" "	746	20.1
1920	15,000	" "	798	18.8
1921	15,000	" "	662	22.7
1922	15,000	" "	763	19.7
1923	15,000	" "	1,007	14.9
1924	15,000	" "	1,142	13.1
1925	23,000	*Gas Facts*[2]	1,189	19.3
1926	23,000	" "	1,313	17.5
1927	23,000	" "	1,445	15.9
1928	23,000	" "	1,568	14.7
1929	23,000	" "	1,918	12.0
1930	46,000	Earl P. Hines[3]	1,943	23.7
1931	46,000	" "	1,686	27.3
1932	46,000	" "	1,556	29.6
1933	46,000	" "	1,555	29.6
1934	62,000	Ralph E. Davis[4]	1,771	35.0
1935	62,000	" "	2,408	25.7
1936	62,000	" "	2,571	24.1
1937	66,000	" "	2,854	23.1
1938	70,000	Lyon F. Terry[5]	2,960	23.6
1939	70,000	" "	3,162	22.1
1940	85,000	Ralph E. Davis[4]	3,331	25.5
1941	113,800	P.A.W.[6]	3,459	32.9
1942	110,000	"	3,701	29.7
1943	110,000	"	4,336	25.4
1944	133,500	"	4,731	28.2
1945	147,789	A.G.A.[7]	4,840	30.5
1946	160,576	"	4,943	32.5
1947	165,927	"	5,630	29.5
1948	173,869	"	6,008	28.9
1949	180,381	"	6,245	28.9
1950	185,593	"	6,893	26.9
1951	193,811	A.G.A.[7]	7,967	24.3
1952	199,716	"	8,640	23.1
1953	211,447	"	9,239	22.9
1954	211,711	"	9,427	22.5
1955	223,697	"	10,118	22.1
1956	237,775	A.G.A.[7]	10,908	21.7
1957	246,569	"	11,502	21.4

[1] And Associates, New York, in report September 23, 1947. [2] American Gas Association yearbook, 1945 and 1946. [3] Then with Cities Service Co., New York. [4] Consulting Engineer, Houston. [5] Formerly of Chase National Bank, New York. [6] Petroleum Administration for War. [7] American Gas Association.

Free World drilling to rise 6 percent

COMPLETION of 5,080 new wells in the Free World outside the United States and Canada is forecast for 1959, as completion rates begin to recover from a slump experienced last year. This figure would represent more than a 6 percent increase compared to the 4,799 completions tabulated (and partly estimated) in 1958. However, the 1959 forecast is still about 7 percent below the 1957 rate.

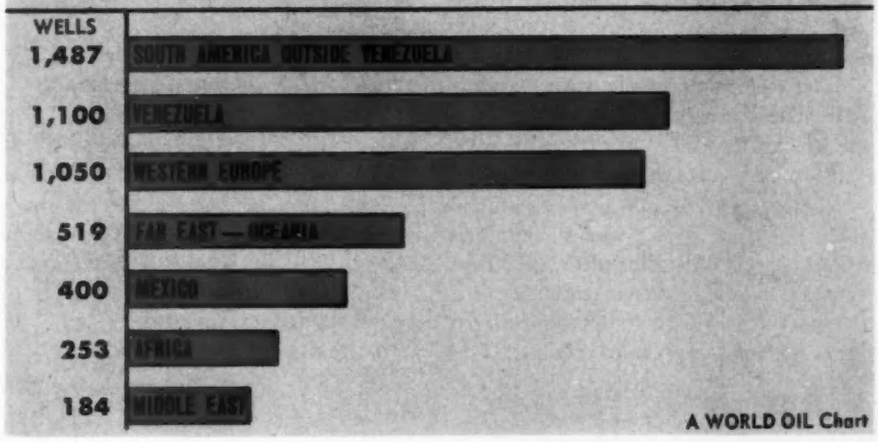
WORLD OIL had predicted a decline in completions in the Free World last year, but the decrease proved more severe than anticipated. Completions in Venezuela during the last half of 1958 were much fewer than expected, so that the year's total was only 1,090. In addition, about 60 wells were suspended at the end of December. A slight increase is expected in Venezuela in 1959, with 1,100 completions predicted. The recent retroactive tax boost is causing some companies to cancel or postpone development drilling programs for moderately profitable wells, since the small expected margins cannot justify drilling at this time. However, exploratory drilling may be pushed more strongly in some cases, since under higher tax rates the government will, in effect, pay a bigger share of the cost of dry holes.

The drilling picture has brightened elsewhere in South America. Provided Argentina politics remain relatively stable, and the nation's fiscal problems can be mitigated, the 550 wells forecast for 1959 may prove to be conservative. Yacimientos Petroliferos Fiscales (YPF) was operating about 70 rigs as of January, and was increasing the number. Pan American International Oil Company was expected to complete the 50 wells required this year by its contract with YPF, and certain other companies under recent contract to YPF were ready to drill. YPF was asking for tenders for the drilling of 4,000 wells in lots of 200 or 300 in the Comodoro Rivadavia area. Most of the areas scheduled for intensive drilling (i.e., Comodoro Rivadavia and Tierra del Fuego) entail moderate depths, 7,000 feet or shallower, hence 1959 completions are apt to increase rapidly.

In Brazil, Petrobras completed 138 wells in 1958, very close to the 130 forecast last year. Petrobras has a very ambitious program for 1959, including 149 development wells and 117 wildcat and stratigraphic tests. Of these 266 wells, WORLD OIL forecasts that 200 will be completed in 1959.

Western Europe is expected to remain status quo, with completions remaining at about 1,050 annually. A 30-well increase forecast for West Germany is expected to offset the decline in Austria owing to rigs being worn out without replacements, and a possible movement of French rigs to the Sahara.

SOUTH AMERICA-EUROPE TO BE TOP AREAS IN 1959 DRILLING OUTSIDE U. S.-CANADA

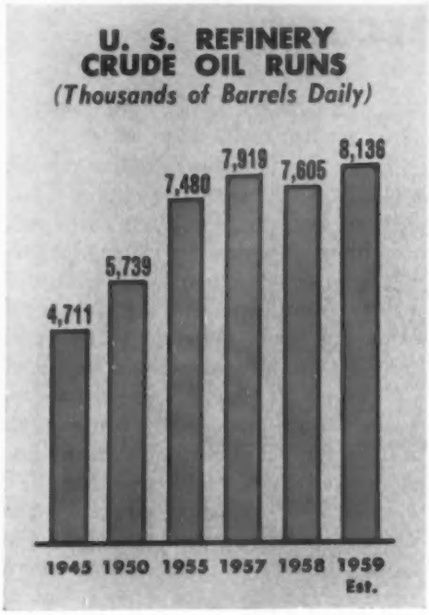


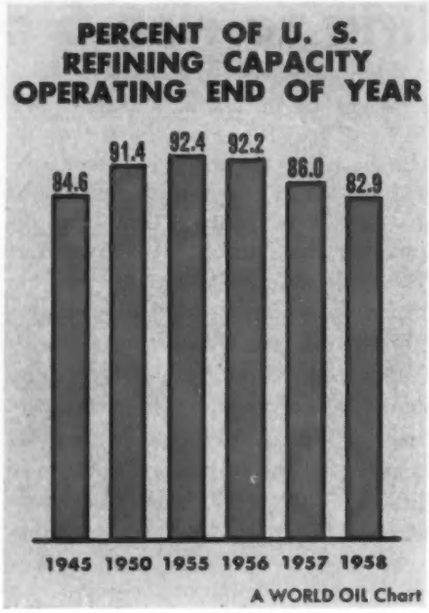
1959 Drilling Prospects for Free World

(Exclusive of U.S., Canada, and U.S.S.R. and Soviet Satellite Countries)

REGION	Wells Forecast 1959	WELLS DRILLED 1958*	WELLS DRILLED 1957
North America, Outside U.S. and Canada	**471**	**432**	**444**
Mexico	400	379	389
Cuba-Jamaica-Haiti-Bahamas	71	53	55
Central America	**16**	**14**	**9**
South America	**2,587**	**2,336**	**2,981**
Argentina	550	368	346
Colombia	170	160	156
Ecuador	15	32	74
Peru	100	120	151
Trinidad	345	330	314
Venezuela	1,100†	1,090†	1,746
Other South America	307	236	194
Middle East	**184**	**195**	**200**
Western Europe	**1,050**	**1,051**	**1,154**
Western Germany	550	520	561
Austria	90	100	125
France	110	120	144
Italy-Sicily	210	210	207
Other Western Europe	90	101	117
Africa	**253**	**238**	**225**
Algeria	125	100	84
Other Africa	128	138	141
Far East–Oceania	**519**	**533**	**526**
Japan	250	250	292
Indonesia	150	173	157
Other Far East	119	110	77
Total	**5,080**	**4,799**	**5,539**

* 1958 completions partially estimated in some areas.
† Does not include suspended operations.





U. S. Crude Runs to Stills, by Years

Source: Bureau of Mines, except Nov.-Dec., 1957 from API.

(THOUSANDS OF BARRELS)

Year	Total	Daily	Year	Total	Daily
1918...	326,025	893	1939	1,237,840	3,391
1919...	361,520	990	1940	1,294,283	3,536
1920...	433,915	1,186			
			1941	1,409,192	3,861
1921...	443,363	1,215	1942	1,334,103	4,655
1922...	500,706	1,372	1943	1,429,738	3,917
1923...	581,238	1,592	1944	1,665,684	4,551
1924...	643,719	1,759	1945	1,719,534	4,711
1925...	739,920	2,027			
			1946	1,730,197	4,740
1926...	779,264	2,135	1947	1,852,246	5,075
1927...	828,835	2,271	1948	2,048,349	5,597
1928...	913,295	2,295	1949	5,944,221	5,327
1929...	987,708	2,706	1950	2,094,867	5,739
1930...	927,447	2,541			
			1951	2,370,404	6,494
1931...	894,608	2,451	1952	2,441,259	6,670
1932...	819,997	2,240	1953	2,554,865	7,000
1933...	861,254	2,360	1954	2,539,564	6,958
1934...	895,636	2,454	1955	2,730,218	7,480
1935...	965,790	2,646			
			1956	2,905,106	7,937
1936...	1,068,570	2,919	1957	2,890,436	7,919
1937	1,183,440	3,242	1958	2,775,713	7,605
1938...	1,165,015	3,192			
			1959 Est.	2,969,640	8,136

Refinery crude runs to rise 6.8 percent

U.S. REFINERY crude runs to stills will reflect about a 6.8 percent increase during 1959, according to U.S. Bureau of Mines estimates.

With an anticipated increase in the total demand for oils during 1959 of about 4 percent, it is desirable that crude runs to refineries amount to a daily average of 8,136,000 barrels, an increase of approximately 500,000 barrels daily from the previous year.

This range of refinery runs will permit some addition to stocks if demand remains at about 4 percent greater than last year's. At the same time, higher crude runs than those reflected by the almost 7 percent rise would result in another oversupply of refined product inventories, a problem existing at the start of 1958.

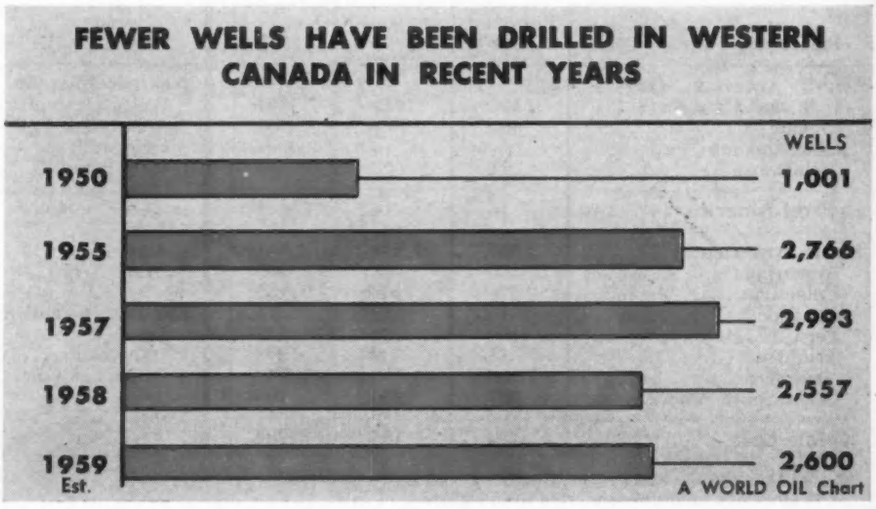
U.S. refining capacity at the beginning of 1959 was about 9.6 million barrels daily. In December, 1958, crude runs to stills averaged 7,956,000 barrels daily, or 82.9 percent of capacity. U.S. refining capacity at the start of 1958 was approximately 9,085,000 barrels a day. In December, 1957, runs to stills averaged 7,816,000 bpd, or 86 percent of capacity.

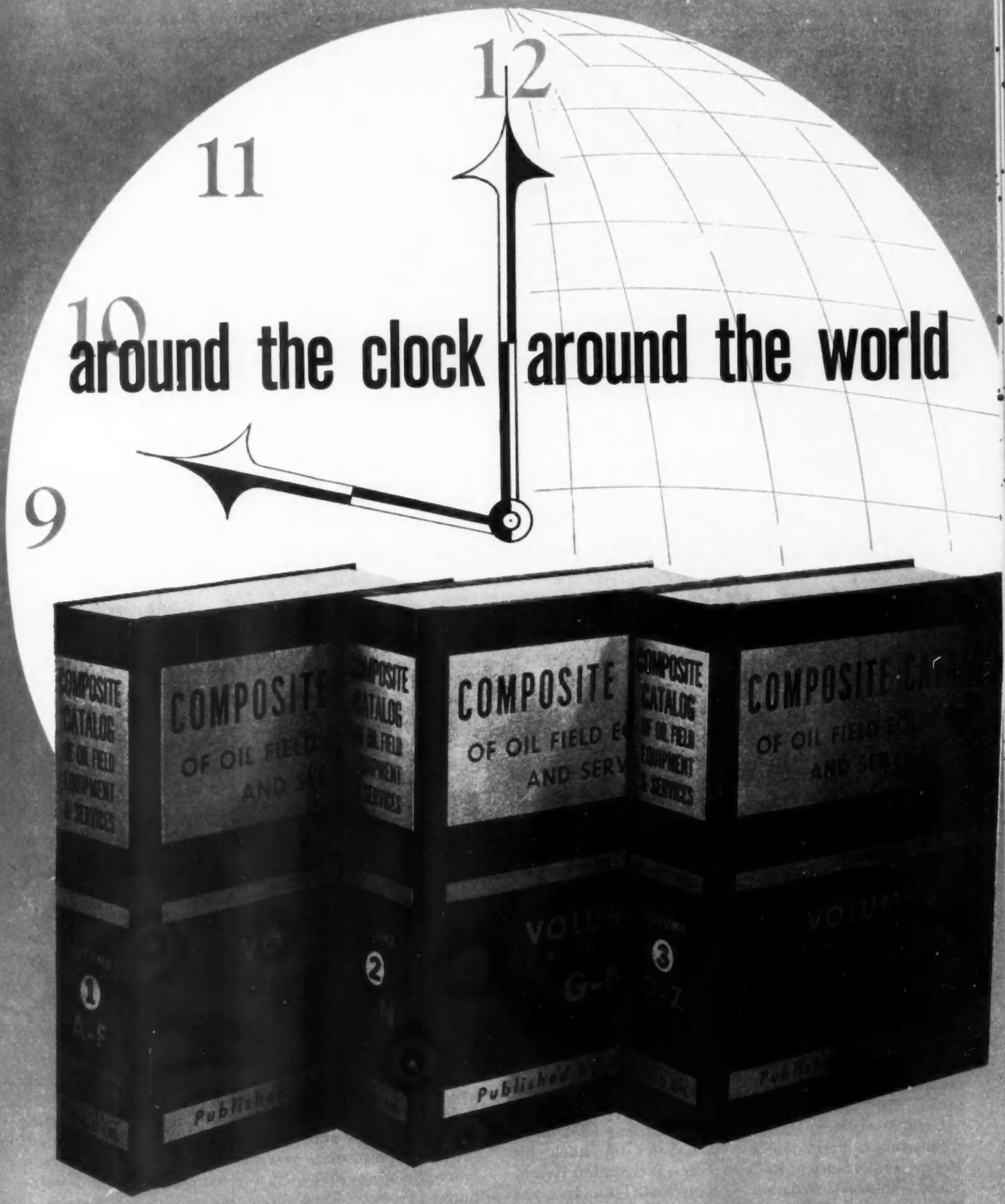
Canadian drilling increase forecast for '59

ABILITY TO PRODUCE more oil than available markets can absorb, especially since imposition of U.S. restrictions on crude oil imports, is continuing to retard Western Canada drilling activity. Consequently, it appears that only a small increase in drilling is likely to be recorded during 1959.

WORLD OIL estimates that 3,050 wells and almost 13.6 million feet of hole will be drilled in Canada during the current year. That would be an increase of 43 completions and slightly more than 316,000 feet of hole from 1958.

Western Canada is expected to account for all of the drilling rate





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increase. That area is expected to have a total of 2,600 completions with an accompanying footage of 13 million feet. During 1958, a total of 2,557 wells was drilled in Western Canada, with a resultant footage of almost 12.7 million feet. Drilling in Eastern Canada, it is anticipated, will be on a par with the previous year, when 450 wells were drilled with total footage of 585,000 feet.

Forecast of Wells and Footage to Be Drilled in Canada During 1959

	Western Canada		Eastern Canada		All Canada	
	Wells	Footage	Wells	Footage	Wells	Footage
1959 Forecast	**2,600**	**13,000,000**	**450**	**585,000**	**3,050**	**13,585,000**
1958	2,557	12,683,921	*450	*585,000	3,007	13,268,921
1957	2,993	13,968,509	446	577,139	3,409	14,545,648

* 1958 Eastern Canada estimated.

The Canadian oil industry, as elsewhere, has been affected by the influence of the world crude oil surplus on earnings, which in turn affects drilling operations. Alberta has borne the brunt of the decrease in crude output, because of the extreme vulnerability of its export business with the U.S. West Coast. But Saskatchewan has had a major increase of more than 20 percent.

Saskatchewan's growth record stems from the proximity of its oil to eastern and southern markets, availability of medium gravity crude which is in demand by the U.S. northern states, and the absence of prorating to market demand.

As 1958 drew to a close, the consensus was that Canada's decline in production of crude oil, as compared with the previous year, would be halted. Recently, industry forecasters predicted that Canada would begin the current year with production amounting to slightly below 450,000 barrels per day on the average, or approximately 10 percent below the 1957 average of less than half a million barrels per day.

Thus it is that the outlook is brighter for the current year. Without an increase in export markets, Western Canada's total production is expected to recover a sizable part of the loss sustained last year. It is anticipated that this recovery will be reflected in an increase in Alberta Province's crude oil production.

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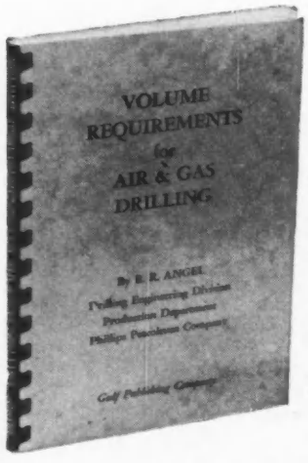

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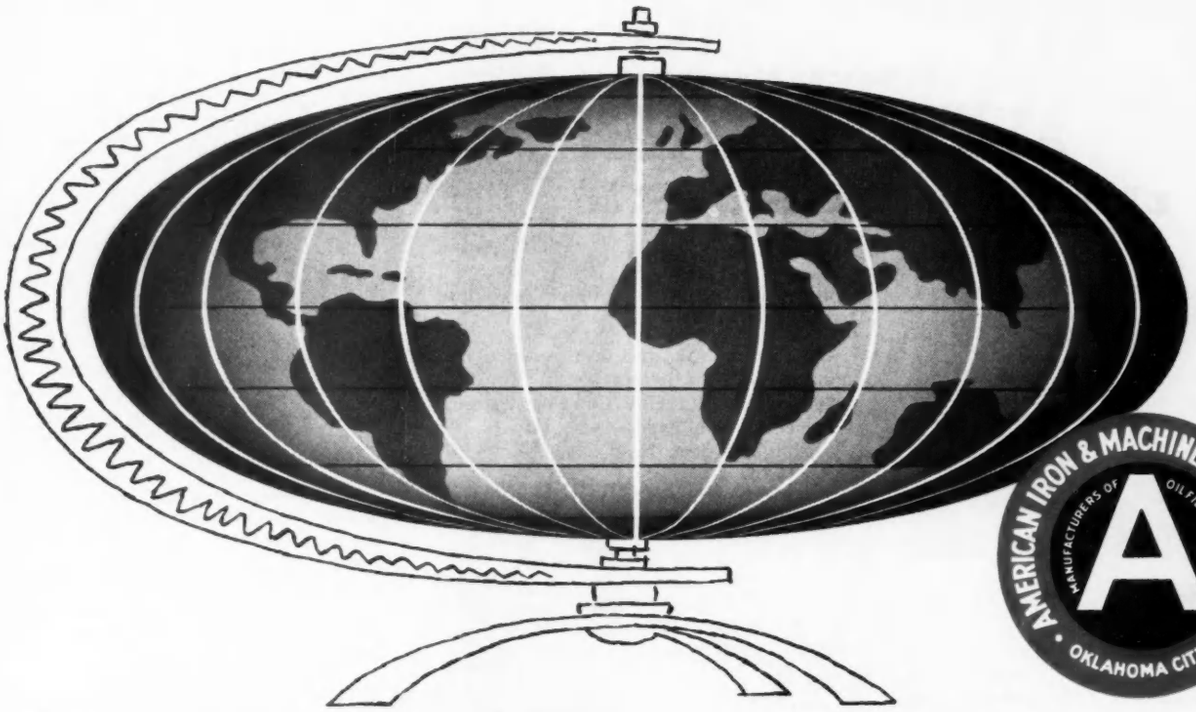

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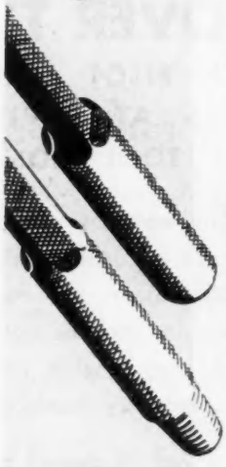

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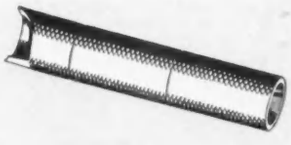

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What's Happening

among MEN in the INDUSTRY

Richard Ny

Jack J. Leener

Richard Ny has been elected treasurer and **Jack J. Leener** has been appointed advertising manager of **Tidewater Oil Company.** Prior to Ny's election, the treasurer's position was held by **Russell D. Richardson,** who continues as vice president, finance and controller. Prior to Leener's present appointment he was a United Press staff correspondent.

Donald P. Flynn, of Tulsa, has been elected assistant vice president of the **Republic National Bank** of Dallas. Mr. Flynn will be active in Republic's National Accounts Division.

A. F. Lorton, Jr., has been selected director of public relations activity for the south and west for Gulf Oil Corporation. He succeeds Don Riddle, who retired.

Lorton had been head of public relations for Pacific Northwest Pipeline Corporation until recently. Since September, 1958, he had been associated with James A. Clark, oil and gas writer, in consulting work.

A. F. Lorton, Jr.

Lorton served 11 years as a special agent of the Federal Bureau of Investigation in various assignments including FBI headquarters at Washington, D. C., New York City, Savannah, Ga., Birmingham, Ala., and Houston. He resigned from the FBI in 1950 after serving in Houston three and one-half years. Headquarters with Gulf will be in Houston.

Alan C. Roberts was elected trust officer at a meeting of **The Fort Worth National Bank's** board of directors held recently. At the annual meeting of stockholders the following directors and advisory directors were re-elected: Messrs. **B. L. Anderson, W. Hoyt Baird, Perry R. Bass, Dr. Coleman Carter, Jr., D. M. Cogdell, Wm. Fleming, E. F. Freeman, H. B. Fuqua, Raymond C. Gee, George W. Herd, Joe B. Hogsett, F. Kirk Johnson, Ben E. Keith, Porter King, Marvin Leonard, Web Maddox, W. M. Massie, J. E. McKinney, W. L. Pier, Guy Price, Arch H. Rowan, Ray O. Shaffer, B. B. Stone, A. W. Tarkington, Paul W. Tibbetts, Estil Vance, Frank M. Wood.** Roberts, elected a trust officer, joined the bank on November 1, 1958, as manager of the newly created Oil and Gas Section of the Fort Worth National's Trust Department.

Alan C. Roberts

Shell Oil Company recently moved its exploration district office from Evansville, Ind., to Pittsburgh, Penn. The following personnel changes have been made. **Paul Fairchild** has been named Division Exploration Manager at Pittsburgh and **Harry Walley,** Division Land Manager. Both were transferred from Denver where Fairchild was area geologist and Walley, area land agent. Transferred to Pittsburgh from Evansville were **T. P. McCann,** district

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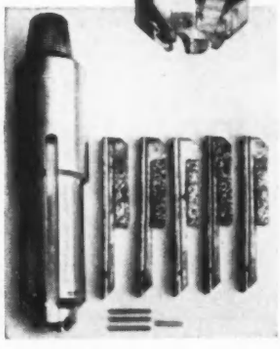

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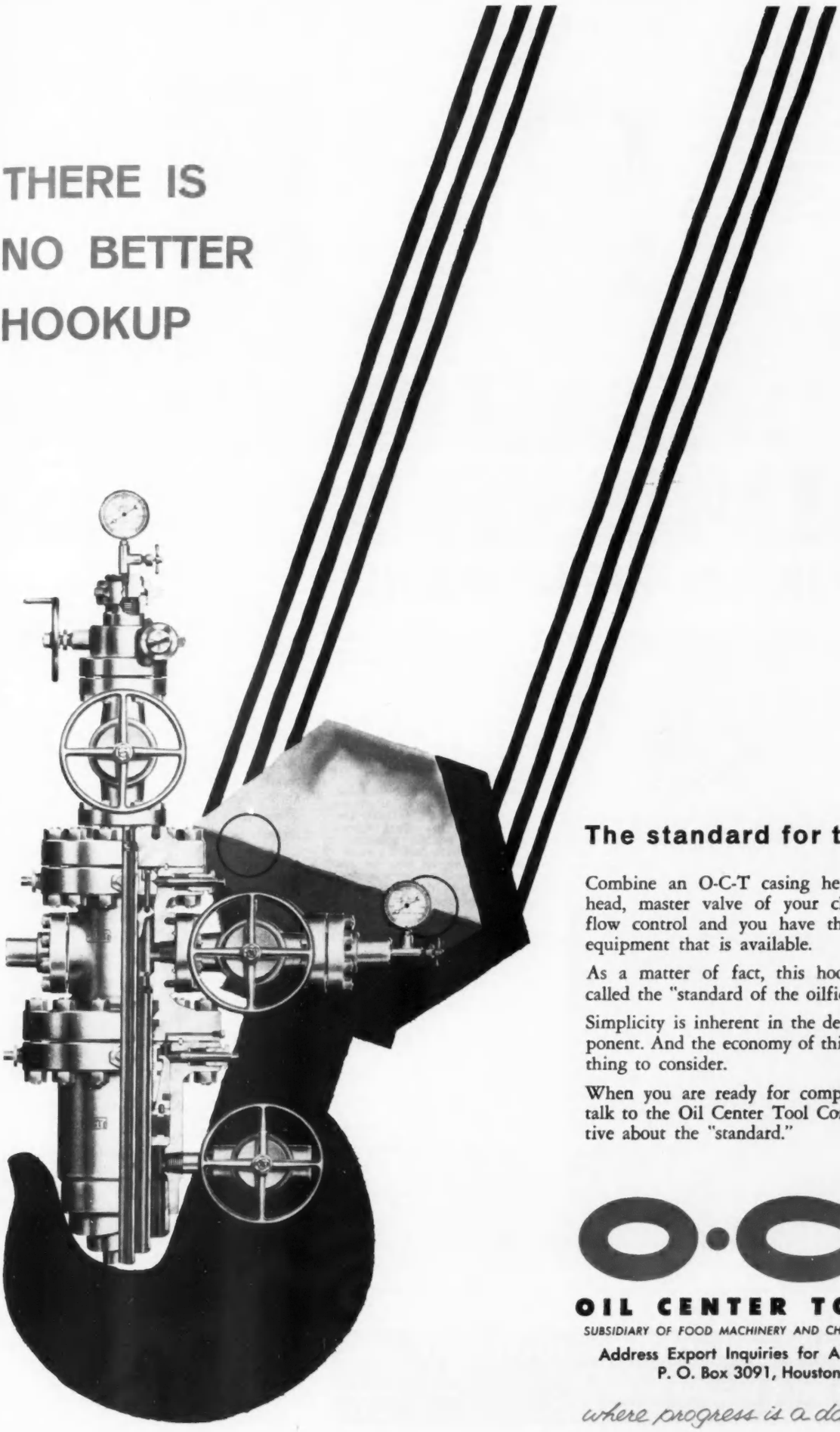

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geologist, and his staff of **F. H. Jacobeen, M. C. Noger** and **C. J. Slagle**, geologists; **R. T. Elmore**, stratigrapher; **P. S. Polhemus**, scout; and **H. A. Winninger** and **D. L. Hodge**, draftsmen. Also assigned to the Pittsburgh staff is **C. L. Jenks**, geologist from Denver; **R. G. Ludwig**, stratigrapher, from Tulsa; and **A. H. Lobsitz**, office supervisor from Oklahoma City. **A. W. Trepatz** and **J. H. Patillo**, scouts, remain in their present locations in Evansville and Southpoint, Ohio. At Fort Smith, Ark., the district land agent is **J. W. Wilcox**, who was transferred from Tulsa where he was in charge of the unitization and pooling section of the land department. **R. W. Forster**, a geologist from Oklahoma City; **Leonard Vaughn**, scout, from Amarillo, Texas, **C. J. Cerny**, exploitation engineer, from Amarillo; and **E. W. Triplett**, drilling foreman, from Elk City, Okla., have also been assigned to the Fort Smith office.

E. A. Clement, Jr.

Edmund A. Clement, Jr., exploration supervisor for **Delhi-Taylor's**, Farmington, N. M. district, has resigned to engage in geological consulting work in the Four Corners Area, with emphasis on the San Juan Basin. Clements has opened temporary offices in Farmington.

S. W. Totten has been appointed a director, vice president and general manager of exploration for **Standard Oil Company of California**, Western operations, Inc. Totten succeeds **O. F. Van Beveren** who has been named vice president of **American Overseas Petroleum Limited.** This company conducts exploration and producing activities over a large portion of the Eastern Hemisphere and is jointly owned by Standard of California and **The Texas Company.** Totten's appointment will bring him to San Francisco from Denver where he has been serving as vice president of the California Company, Standard's Mid-Continent production, exploration and marketing subsidiary which is headquartered in New Orleans. He will be succeeded there by **H. C. Bemis**, former superintendent of Western Operations' Southern California exploration district.

S. W. Totten

Clarence D. Shepard of Ottawa, Canada, has been appointed general counsel of the **British American Oil Company**, with headquarters in Toronto. His appointment became effective January 1.

James Ryan Walker has been employed recently as staff geophysicist with **Murphy Corporation**, according to a recent announcement. He went to El Dorado, Ark., from Shreveport, La., where he was a geophysicist consultant.

C. N. Holmes, director of the strategic minerals section, and **D. E. Fryhofer**, land assistant to the director, both of **Phillips Petroleum Exploration** division, have been transferred from Salt Lake City, Utah, to Bartlesville, Okla., where Phillips has moved the headquarters of the strategic minerals section.

Samuel Joseph

Benjamin Schiffer

Samuel Joseph and **Benjamin Schiffer** have been appointed vice presidents of **H. Zindler & Associates.** Zindler & Associates provide consulting services to natural gas and oil production companies, gas transmission and distribution systems, electric utilities, financial institutions and industrial concerns. Joseph has been active in public utility affairs for approximately 25 years, including experience as an accounting examiner and witness for the Federal Power Commission. Schiffer, prior to joining the Zindler organization, served 14 years with the FPC. He is a specialist in the areas of rate design, rate structures and cost allocation.

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Harold Decker of Houston, chairman of the state group of the **Oil Industry Conservation Forum,** has named the members of the Texas sub-committee. The members of the group are: **W. J. Goldston, Johnny Mitchell, E. W. Webb** and **James D. Wheeler,** all of Houston; **C. L. Norsworthy, Jr.,** and **Lewis P. O'Neill,** Dallas; **Alvin C. Hope** and **Fred W. Shield,** San Antonio; **J. H. Dunn** and **A. E. Hermann,** Amarillo; **Hamilton Rogers** and **C. G. Contra,** Fort Worth. Other members include **B. G. Byars, Tyler; Joseph I. O'Neill, Jr.,** Midland; **E. Bruce Street,** Graham; **J. S. Lauderdale,** Abilene, and **Marvin L. McCullough,** Wichita Falls. Decker has indicated the first meeting of his subcommittee would be called soon to begin a study of Texas petroleum conservation.

David A. Shepard, a director of Standard Oil Company (New Jersey), has been elected an executive vice president and a member of the executive committee of that firm. Shepard began his 31-year association with the Jersey Standard organization in 1927 as a research engineer immediately after his graduation from Massachusetts Institute of Technology as a chemical engineer. He has been a member of the board of directors of Jersey Standard since 1951 after wide experience with the company's domestic and foreign affiliates. After serving as a research engineer at the Baton Rouge refinery of Standard Oil Company of Louisiana, now part of Esso Standard Oil Company, he worked on oil hydrogenation and product application problems until 1934 with what is now Esso Research and Engineering Company, Jersey Standard's principal research affiliate.

David A. Shepard

Sidney R. Saxton has been appointed editor of **Pennzoil News,** published quarterly by **South Penn Oil Company.** Saxton formerly was a staff engineer and technical editor for the Oil Well Supply Division of U.S. Steel Corporation in Oil City, Penn.

Dr. Charles E. Weaver, a Houston geologist of **Shell Development Company,** recently was the recipient of the **Mineralogical Society of America Award.** He received the high professional honor at the annual meeting of the National Geological Society in St. Louis. The award is given each year to an individual under 35 years of age for published results of original research constituting an outstanding contribution with the society's fields of interest.

John R. Suman, a retired vice president and a director and member of the executive committee of **Standard Oil Company (N. J.),** and an honorary director of the **American Petroleum Institute,** was awarded the **Howard Coonley Medal** "for his leadership role in the advancement of the national economy through voluntary standards." At the same time, **William P. Kliment,** engineer of standards, **Crane Co.,** was also awarded The Standards Medal for his "indefatigable efforts and outstanding achievements in the practical development and application of voluntary standards." Suman of Houston, and Kliment of Chicago, received the awards at the award luncheon at the ninth annual Conference on Standards that was held in New York recently.

John R. Suman

Mark Olsen, petroleum consultant, recently moved his offices from Rio Grande City, Texas, to the Chastin Building in McAllen, Texas. The move also included his Latin American exploration company, **Petroleos Americanos.**

Harry Ptasymsi, district geologist at Casper, Wyo., for **The Pure Oil Company,** has resigned to become a consultant.

Walter Shannon has been named director of pipe line engineering of **Gulf Oil Corp.,** with offices in Pittsburgh. Shannon formerly was vice president and manager of operations for Gulf Refining Company with headquarters in Houston.

George D. Daly, Jr., formerly petroleum engineer The Atlantic Refining Co.'s Mid-Continent division production department, is now petroleum engineer with **Herman H. Kaveler, Petroleum Engineering and Management Consultant, Tulsa.**

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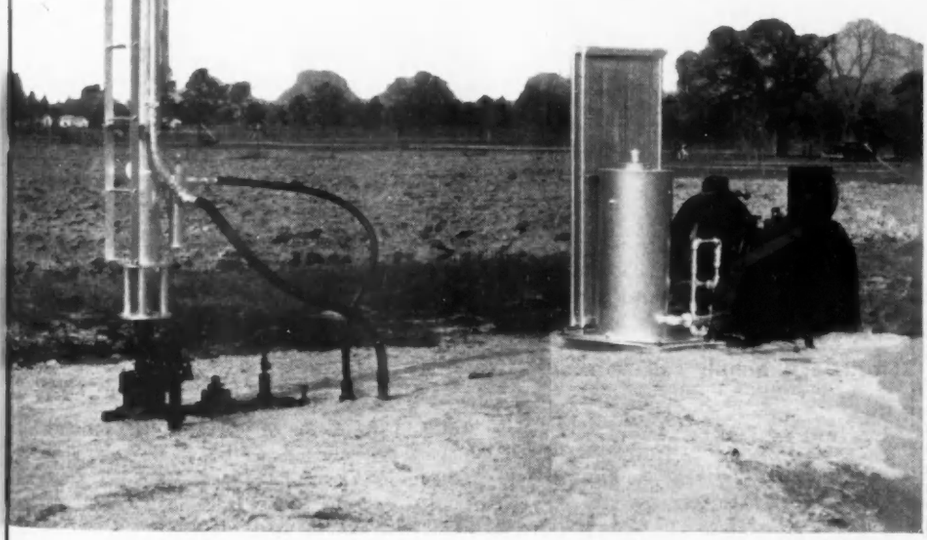

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George H. Buchanan has been elected senior vice president by the board of directors of the **Husky Oil Company.** The senior vice presidency is a new office in the company. Buchanan has been vice president, production. In his new capacity Buchanan will continue to direct the exploration program of the company and will also be responsible for conducting the company's reserves acquisition program In addition he will direct the foreign exploration work of Husky's subsidiaries. **James C. Gilbert,** formerly assistant to the vice president, production, has been named manager of Appraisals and Economics and **Roland F. Cowley,** formerly acting district production clerk at Cody, Wyo., has been named administrative analyst in the office of the president, **Glenn E. Nielson.**

The Texas Company has announced three appointments in the Legal department. **R. J. Derby** has been named associate general counsel. He will transfer to Texaco's New York office from Houston, where he has been general attorney since 1956. **A. B. Steed** has been appointed general attorney in the New York office where he has been an attorney since 1954. **J. J. O'Keefe,** who has been assistant attorney general in the Houston office, will succeed Derby as general attorney there.

Robert Storch, vice president of **Alex W. McCoy, Associates, Inc.,** Tulsa, has been transferred from the firm's Denver office to Tulsa. The consolidation resulted in the closing of the firm's Denver office of which Storch formerly was in charge.

N. E. Barnett, Tidewater Oil Company, represented his company at the twentieth session of the course on Management Problems for Executives at the University of Pittsburgh recently. The student representing the Continental Oil Company was **Allen J. Alexander.** The students were selected on the basis of the quality of their performance in business and were chosen by their companies for showing the best potential to assume the responsibilities entailed in executive leadership.

N. E. Barnett

Nicolas M. Salgo, president of **Norbute Corporation; Howard M. Plant,** chairman of the board of Norbute and **William Ross,** vice president of Norbute, all were recently elected to the board of **Crescent Petroleum Corporation.** The Norbute Corporation was recently merged into Crescent. At the same board meeting, Salgo was elected to the office of chairman of the executive committee and Plant was made a member of the executive committee. The newly elected board members will also continue in their former capacities with Norbute Corporation which is now a wholly-owned subsidiary of Crescent. **William Garbade,** president of Crescent made the announcement.

The promotion of several personnel and the transfer of others to and from the Miles City office of **The Carter Oil Company,** has been announced. **Earl C. Cockrum,** present Carter district geologist, has been promoted to district exploration manager. **James P. Duncan,** a Carter geophysicist in Miles City, has been promoted to district geophysicist. Being transferred to Miles City as district geologist is **Roy B. Strong,** Billings.

Emile E. Soubry, executive vice president of **Standard Oil Co.** (N. J.), will solicit the petroleum industry on behalf of foreign policy association programs of public education in world affairs.

Emile E. Soubry

Donald L. Redman formerly manager of operations has been elected by the board of directors of **Central-Del Rio Oils Limited** as vice president—operations, and re-elected to the board of directors.

William A. Lyon and **Frank M. Porter** have been elected advisory directors of **Chemical Corn Exchange Bank.** Lyon, who is president of Dry Dock Savings Bank, will serve as a member of Chemical's Upper Midtown Advisory Board. Porter, president of the American Petroleum Institute and also of Fain-Porter Drilling Co., becomes a member of Chemical's Rockefeller Center Advisory Board.

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JENSEN JACKS

Robert E. Farrer, engineer, has opened the **Oilfield Research** office and laboratory in Robinson, Ill.

David D. Lobaugh, Jr., who has been auditor for **Shell Oil Co.'s** Tulsa exploration and production area treasury department, has been advanced to the company's head office production accounting department. **Dwain J. Dunn,** supervisor of the general accounting section of the Tulsa treasury department, will succeed Lobaugh as auditor for the Tulsa area.

Robert E. Old, Jr., has been appointed general manager of the exploration and production operations into Venezuela for the **Stekoll Petroleum Company.** Old has extensive overseas experience with more than 6 years of it in Venezuela as reservoir engineer and assistant production manager for Socony-Vacuum (now Socony-Mobil). In 1944, Old made his first trip to Venezuela as reservoir for Socony-Vacuum, returning to New York as chief petroleum engineer in 1946 and then back to Venezuela from 1949 to 1953 as assistant production manager. Old joined Stekoll last December 1.

Robert E. Old, Jr.

R. G. Greene has been elected president of **Great Basins Petroleum Co.,** Los Angeles. **M. H. Goforth** is the new vice president and secretary; **J. B. Clark** was named vice president and treasurer and **M. F. Radspinner** was elected assistant secretary.

Donald Reeves, Plains district scout for The California Company in Denver, has been transferred as landman to the land department of the district office in Billings, Mont.

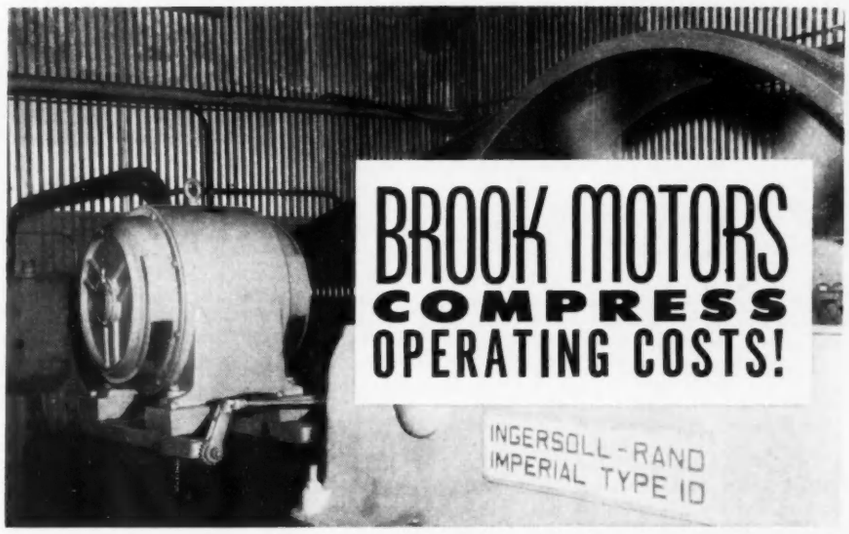
James E. Holden

Milton M. Cooke

Milton M. Cooke and **James E. Holden** have announced the organization of a petroleum property management company. the firm will operate under the name of **Cooke & Holden, Inc.,** and will offer a complete management service for producing oil and gas properties. Cooke is president of the new firm. **Mrs. Bernice Dowe Collis** is also associated with Cooke and Holden as secretary and office manager. The offices for the new firm will be located in the Bank of the Southwest Building, Houston.

Ralph Thomas has been named exploration representative at Salt Lake City, Utah, for the **Shamrock Oil and Gas Company.**

Cosden Petroleum Corp., has acquired all of the assets of the **Pratt-Hewit Oil Corporation** and its wholly-owned subsidiary, the **Pratt-Hewitt Oil Corp. of Texas.**



Users report savings on operating costs when BROOK A.C. MOTORS furnish power for compressors, pumps, conveyors and machinery in factories, mills and mines. Brook Motors require less maintenance. There is no finer motor built, yet they *cost less.* All standard enclosures, including NEMA Rerates. 1 to 600 H. P. Warehouse stocks, factory representatives and dealers coast-to-coast. Send for literature.

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world's most respected motor

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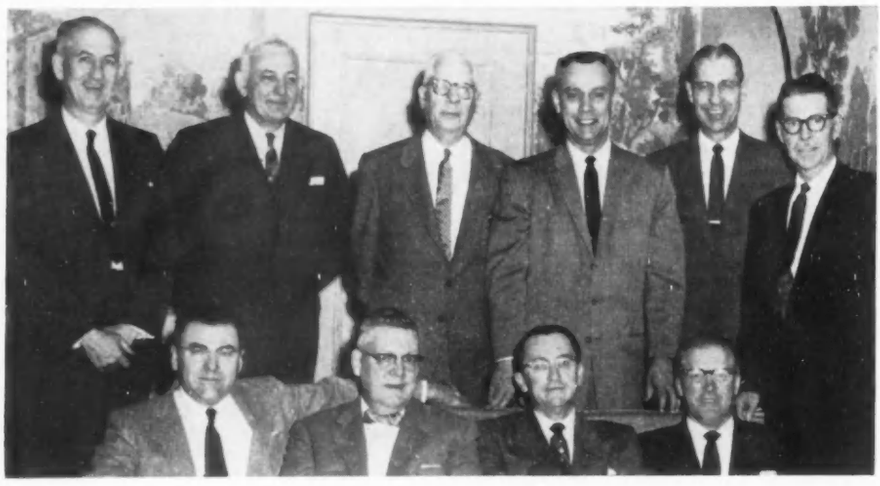
what's Happening

among INDUSTRY ASSOCIATIONS



Tulsa NOMAD Officers Hold First Meeting

First meeting of new officers of the Tulsa Chapter NOMADS brought together this group at a luncheon in the Tulsa Club. They are, seated from left, Ray Carter, Triangle Oil Co., on the planning committee for the group's inaugural ball held in January; John Pearce, Superior Iron Works and Supply Co., senior regent; Oscar Irizarry, Petroleo Interamericano, president; and Harry Horton, Tret-O-Lite Co., assistant secretary. Standing are Guy Williams, Dowell Incorporated, retiring senior regent; W. O. Timberlake, Lucey Products Corp., secretary; Vern Bailey, Bethlehem Supply Co., assistant treasurer; James Young, Reed Roller Bit Co., on the dance planning committee; Floyd Cummings, Axelson Manufacturing Company Division of U. S. Industries, treasurer, and E. M. Donovan, Martin-Decker Corp., Oklahoma City, sergeant-at-arms. New officers not present at the meeting were Paul McGivern, McKissick Products Corp., vice president; Thomas M. Lumly, The Refinery Engineering Co., junior regent, and R. R. Mathews, Alten Foundry and Machine Co., deputy sergeant-at-arms.

1,000 Oil Men Expected At API March Meeting

More than 1,000 oil men concerned with the drilling and production phases of their business are expected to attend the Southern District meeting of the American Petroleum Institute's Division of Production in New Orleans, La., March 25-27.

The meeting offers oil men an opportunity to exchange information on advanced drilling and production techniques with the view of increasing over-all industry effectiveness and efficiency. The industry's broad economic problems will also be discussed.

According to District Chairman Roy Bobo of Phillips Petroleum Company in Houston, delegates to the meeting will come from Louisiana, Mississippi, Arkansas, east, south and southwest Texas, and the Texas Gulf coast.

The first day of the meeting will be devoted to meetings of standing committees on vocational training, supervisory development, standardization of equipment, and drilling and production practice. The meeting will be rounded out on March 26 and 27 by the presentation of papers on oil field operations.

Chairmen for the District meeting are O. L. Furse, Humble Oil & Refining Company, general arrangements; A. L. Vitter, Jr., The California Company, program; J. E. Gosline, The California Company, publicity; J. B. Fleming, Welex, Inc., registration; W. C. Gorden, Shell Oil Co., entertainment; and W. B. Hopkins, Gulf Oil Corporation, meeting room arrangements. All are from New Orleans, La.

Headquarters for the meeting will be in the Roosevelt Hotel.

Powell and Wilson Elected New Officers of PESA

William T. Powell, executive vice president of Continental-Emsco of Dallas and Wallace D. Wilson, president of the Wilson Supply Company of Houston, have been elected president and vice president, respectively, of the Petroleum Equipment Suppliers Association.

Powell joined Emsco in 1937 as chief engineer of the Fabricating Plate Department in Los Angeles. He became manager of the War Material Division in 1941 and was promoted to vice president of manufacturing in 1942. In 1947 he became vice president of engineering and manufacturing and 1951, executive vice president. Powell was elected president of Emsco in 1952. January 1, 1957, when Continental Supply Company merged into the present company, he became executive vice president in charge of manufacturing and engineering, headquartering in Dallas. He is also chairman and director of Emsco's British subsidiary, Emsco Engineering Company, Ltd.

Wilson has been prominent in the oil well supply business for 46 years. He started his career with the Republic Supply Company in Houston in 1912 and advanced to secretary and treasurer of that company. In 1921 Wilson organized the Wilson Supply Company. He is also president of Wilson Foundry and Machine Company and the Engineered Oil Tools, Inc. In 1953, Wilson was named "Grand Old Man of the Supply Industry" at the International Oil Exposition in Tulsa.

Powell and Wilson were elected to their new positions with the association at the Associations annual meeting recently held in Canada.

Stone Elected Chairman Teche Section, NACE

John D. Stone, corrosion engineer for Sunray Mid-Continent Oil Company, Lafayette, La., was elected chairman of Teche Section, National Association of Corrosion Engineers at the Section's last November meeting.

John D. Stone

Also elected to office were Sam. E. Fairchild, Texas Pipe Line Company, Lafayette, vice chairman; Ron J. Cernik, Union Oil Company of California, Abbeville, La., secretary and Phil C. Brock, Dowell, Inc., Lafayette, Treasurer. O. L. Bassham of the Tretolite Company, Lafayette, continues in office as trustee.

The new officers were installed at a dinner-dance meeting in January.

Stone has been active in the Teche Section since his transfer to Lafayette from Shreveport in 1956. He was Secretary of Teche Section and served as director of the Section's second annual Corrosion Control Short Course in 1958. He is active on a number of NACE technical committees and was treasurer of the Shreveport NACE Section in 1956.

Howard C. Pyle Takes Office As New AIME President

The American Institute of Mining, Metallurgical, and Petroleum Engineers have announced that Howard C. Pyle of Los Angeles will take office as president of the AIME at its annual meeting in San Francisco in February.

Pyle has been president, director, and chairman of the executive committee of Monterey Oil Co. since 1951. From 1947 to 1950 he was a vice-president in charge of oil industry loans for the Bank of America. He is a native of Williams, Arizona.

Four new AIME vice-presidents who will take office in San Francisco in February include Thomas C. Frick of Lafayette, La., regional manager of the Atlantic Refining Co.; Dr. Walter R. Hibbard, Jr., of Schenectady, N.Y., manager of Alloy Studies Research for General Electric Co.; Elmer A. Jones of Bonne Terre, Mo., division manager of St. Joseph Lead Co.; and John C. Kinnear, Jr., of McGill, Nevada, general manager of the Nevada Mines Di-

Fiberglass case (on all units) has integrally-molded steel brackets which provide a means of attaching straps for portable use.

Clevite's New Seismic Recording System

The First Truly Portable FM-AM Recording System

Reduced Weight Load—Complete Flexibility Rectilinear Presentation

The average weight of these units is 47 lbs. Yet this system is comparable in performance and flexibility to the most advanced fixed systems.

The Clevite Recording System can be used for either FM or Direct recording. Magnetic and photographic tapes can be recorded simultaneously. Monitoring can be accomplished by rectilinear sequential direct writing monitor, or by conventional oscillograph.

Signal-to-noise ratio is 52 db (without noise cancelling) and 60 db (with noise cancelling).

In addition to these and other features, the Clevite system can be readily integrated into practically any existing system.

We invite you to write for literature and arrange for a demonstration.

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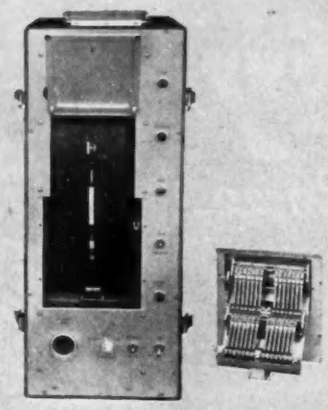
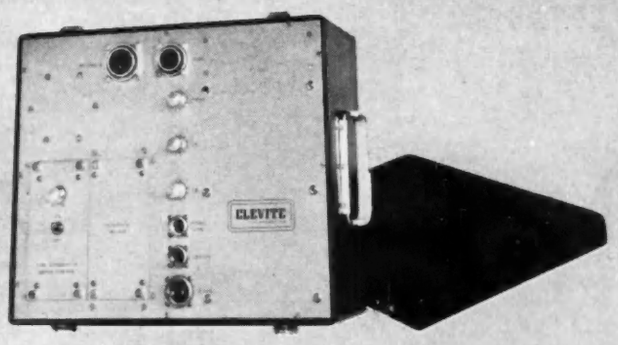


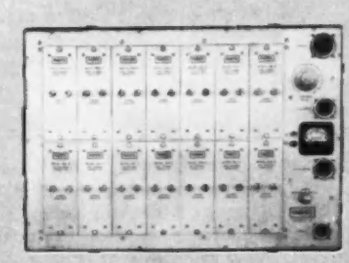
MFR-1 MAGNETIC FIELD RECORDER
28-channel, individually sprung FM or AM heads. Complete head bank is mounted on precision ways and removable without tools. Single channel may be replaced and phased in the field.

Unique belt drive system of stainless steel is servo-controlled and locked to precision fork frequency standard.

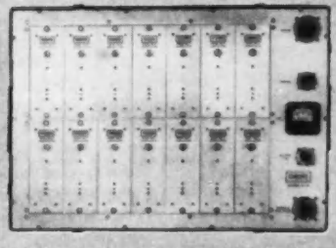


TFP-1 MOTOR DRIVE SYSTEM AND POWER UNIT (Transistorized)
Power unit contains 400 cps time standard, phase comparator, motor drive oscillator, motor drive amplifier, and auxiliary power supply.

MFM-1 MAGNETIC FIELD MONITOR
Four-inch electric writing paper with preprinted timing lines. Rectilinear electric or ink stylus.



MM-4 MAGNETIC MODULATORS
14 dual channels plus control and metering panel.



DM-2 FREQUENCY DEMODULATORS
14 channels per bank.

Tuffy® Wire Rope Tips

Guard Against These Killers!

... Get The Full Measure of Service-Life Built In By Wire Rope Specialists

Mangled in a Wedge Socket

Here's a result of improper socketing. It was caused by using a poorly designed or worn-out wedge socket. Failure at the dead end can damage other sections of the rope, too.

Rusty Road to Ruin

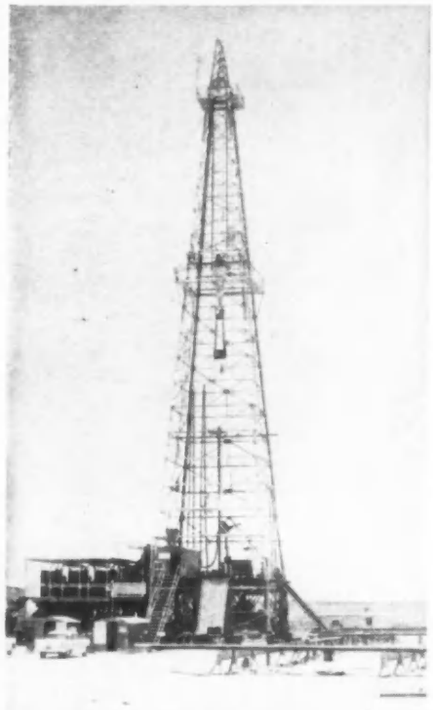
Rust—No. 1 enemy of steel—takes a heavy toll in wire rope life. An insidious, silent type of killer, rust often does irreparable damage before it's even noticed. The one-strand break shown here resulted when the rope was allowed to become rust-bound through lack of lubrication. Tests show that, with other conditions ideal, properly lubricated rope has up to 10 times the life expectancy of dry rope.

Overloaded — Soon Exploded

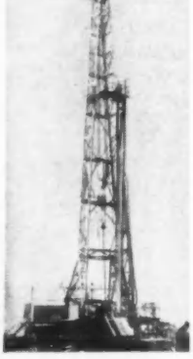
The rated capacity of a wire rope is based on the breaking strength (catalog) divided by a safety factor applicable to the type of service or use. The grade of steel, type of construction and size of the rope determine tensile strength. It must be properly related to the loads it will carry, or costly and dangerous early failures are likely to occur.

Victim of the Bends

Excessive bending of wire rope accelerates wear. Generally, more flexible ropes are used as bending stresses increase (with decrease in tread diameter of sheave or drum). If a rope is operated on a sheave too small for its bending characteristics, early failure is certain. Through an exhaustive series of bending tests, Union Wire Rope engineers have compiled data that you can use to assure getting the rope construction that will give you the longest service life. Ask about it.



Tuffy Balanced Standard Rotary Line helped drill the world's deepest well—Wildcat I-EE in Pecos County, Texas. This rotary line is famous for top performance in use with standard rigs in any formation. It also does an outstanding job with jacknife rigs in deep drilling beyond 6000 feet.



Tuffy Balanced Jacknife Rotary Line: Made to the special needs of jacknife rigs drilling to 6000 ft. Has extra strength, with greater flexibility to move at higher speeds over the smaller sheaves and drums of jacknife rigs, and to give better reeving and spooling.

Tuffy Balanced Slings & Hoist Lines This team has made a name for cutting hoisting and downtime costs in all types of materials handling. Tuffy Hoist Line gives the balanced combination of strength and flexibility needed for a longer running rope. Tuffy Slings are made of an extra flexible, high-strength machine-braided fabric that smooths out uninjured after knotting or kinking.

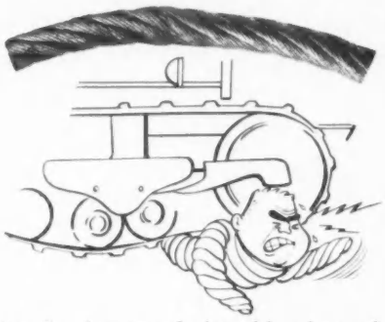
FREE!

Complete handbook of wire rope use in oil field service

Latest, most complete information ever compiled on the subject in one publication. Shows the various rope constructions used by the oil industry, and gives full data tables on each. Includes (in their entirety) "A.P.I. Specifications for Wire Rope" and "A.P.I. Recommended Practice on Application, Care and Use of Wire Rope for Oil Field Service."

Write Union Wire Rope Corporation, 2104 Manchester Ave., Kansas City 26, Mo. Specialists in high-carbon wire, wire rope, braided wire fabric and stress relieved wire and strand.

Crushed by a Tractor Cleat

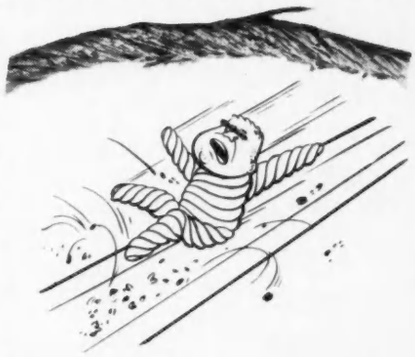


The Sunday punch for this piece of wire rope was delivered by a tractor cleat—just one of many crushing injuries caused by rope being run over or banged into by hard, sharp objects. Even the toughest wire rope is no match for this kind of mistreatment.

After a Suicide Jump

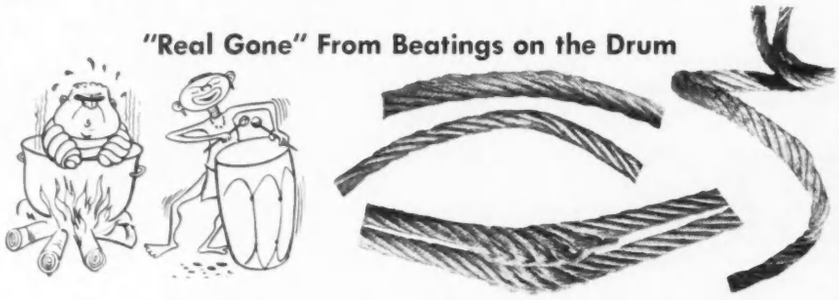
This rope jumped out of sheave and was soon destroyed by pulling around the shaft. Actually it was a case of sudden slack which threw the rope out of the sheave.

Burned on a Frozen Sheave



End of the line came quickly for this rope as the result of operating over a sheave that did not turn. Note the exceptionally heavy abrasion on one side of the rope. Sheaves should be checked thoroughly and often.

"Real Gone" From Beatings on the Drum



Even under normal operating conditions, drum wear gives wire rope severe punishment. This wear concentrates at the cross-over points and at the flange. Excessive drum crushing results from operating on small drums, excessive loading and poor winding. Smooth drums are not recommended. Here are typical "drum beatings": Cross-over wear; cross-over crushing on drum; drum crushing from poor winding; drum-crushing from small drum.

Although drum wear cannot be eliminated, its effects can be greatly reduced. Under properly engineered procedures, two and three times the service can be obtained from the same line by improving drum conditions. Union Wire Rope Engineers will help you with this problem. Get in touch with us for information.

On the "Blink" from a Kink

This open kink resulted from mishandling of rope. Guard against kinks by proper winding on the drum. Never pull a loop smaller. Always enlarge it, then straighten out the rope.

Strangled by a Misfit Sheave

When the bearing surface of a sheave is too small for the rope diameter, pinching action quickly destroys the rope — especially when it's overloaded. The victim shown here was knocked out in just 1½ hours of service.

Tuffy Wire Ropes are "Job Prescribed"—Each Designed for a Particular Type of Machine

There are thousands of wire rope constructions and Union Wire Rope specialists make them all. But, there is only one Tuffy line of wire ropes. Each Tuffy was developed and proved the one best rope for the particular work for which it is intended. It is designed as a functional part of the type of machine on which it is used.

Tuffy Wire Ropes are "job prescribed" and balanced in each prescription are all the ingredients of strength, flexibility and toughness to give you genuine relief from inefficient operation, foreshortened service life and safety hazards. You get longer service life and you cut down on your rope costs. Union Wire Rope Corporation, 2104 Manchester Avenue, Kansas City 26, Missouri.

Your Tuffy Distributor Can Help You Get The Full Measure of Service Life

C1

UNION Wire Rope

ARMCO®

Subsidiary of ARMCO STEEL CORPORATION

OTHER SUBSIDIARIES AND DIVISIONS: Armco Division • Sheffield Division • The National Supply Company
Armco Drainage & Metal Products, Inc. • The Armco International Corporation • Southwest Steel Products

vision of Kennecott Copper Co.

John S. Bell of Los Angeles, area manager for Humble Oil & Refining Co., will join the AIME board of directors for a three-year term.

Exploration Geophysicists To Hold April Meeting

The Society of Exploration Geophysicists have announced the 12th annual Midwestern Meeting of the group that will be held April 27 and 28, in El Paso, Texas.

This meeting will be sponsored by geophysical societies in Midland, Fort Worth, Dallas, Shreveport, Oklahoma City and Tulsa. The Permian Basin Geophysical Society will host this event which will headquarter at the Cortez Hotel.

H. S. M. Burns Accepts Oil Congress Presidency

H. S. M. Burns, president of Shell Oil Company and chairman of the board of directors of the American Petroleum Institute, has accepted the presidency of the World Petroleum Congress, it has been announced.

As congress president, Burns will preside at the more important functions being planned for the meeting.

The congress, the fifth to be held in the past quarter century, is scheduled for New York for May 30, through June 5, and is expected to draw 5,000 to 6,000 executives, scientists and technologists for 50 countries.

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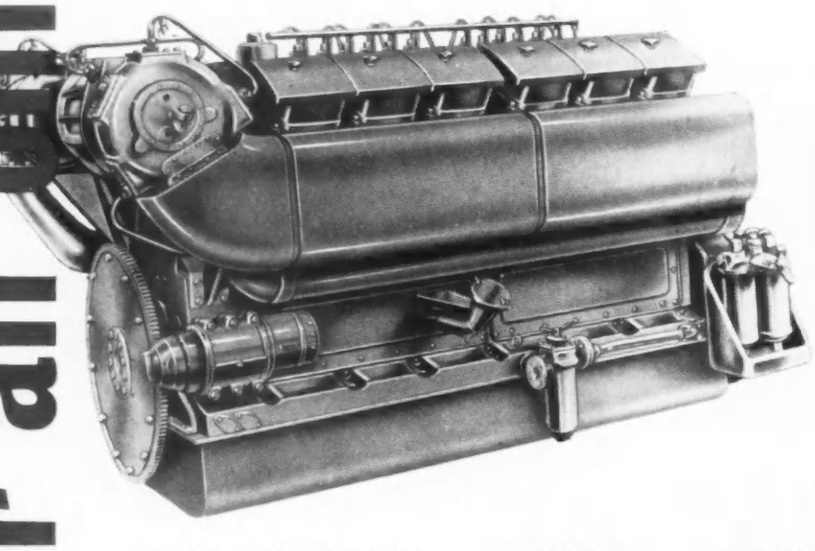
Marine Propulsion



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J53

BOOKS

FIELD EXCURSION EASTERN LLANO REGION, Bureau of Economic Geology, The University of Texas, Austin 12, Texas, by Virgil E. Barnes, 75 cents.

A description of a few of the more interesting localities in the eastern part of the Llano region, frequently visited by geologists, with a listing of geology units recognized in that area make up this informative booklet. An index map of route and localities and detailed geologic maps of individual areas also are included.

PETROLEUM SOURCEBOOK — 1958, National Petroleum Bibliography, Box 3586, Amarillo, Texas, $6.

This new book publication lists some 4,000 information sources covering 82 countries and 82 states, provinces and geographic regions. More than 500 special publications of value to oil men are classified, as well as the regional material from nearly 100 trade magazines and journals.

Compiled from 1,000 pages of literature references issued in 1957 by National Petroleum Bibliography, the book is designed to place in one package the location of petroleum information most often sought by well drillers, geologists, petroleum engineers, executives and researchers.

OIL AND GAS DEVELOPMENT IN OHIO, Ohio Division of Geological Survey, The Ohio State University, Orton Hall, Columbus 10, Ohio, Free.

The annual report on the oil and gas drilling activities in Ohio shows an increase of 800,000 barrels of oil and 534 million cubic feet of gas produced over last year in spite of the fact that fewer wells were drilled.

The report includes a summary of drilling statistics by producing horizon and by county and a list of well sample cuttings and cores received during the year by the Ohio Geological Survey.

IMPROVING OIL RECOVERY, Producers Publishing Company, Box 411, Bradford, Pa., $2.50 plus 25 cents for postage.

Here is a booklet that compiles the lectures given by experts in the oil industry at the University of Texas to the students studying petroleum engineering. The history and significance of fluid injection operations, through the financing of oil production, down to new techniques being used for improving oil recovery are disclosed. A good insight as to what the future of the oil industry can look forward to.

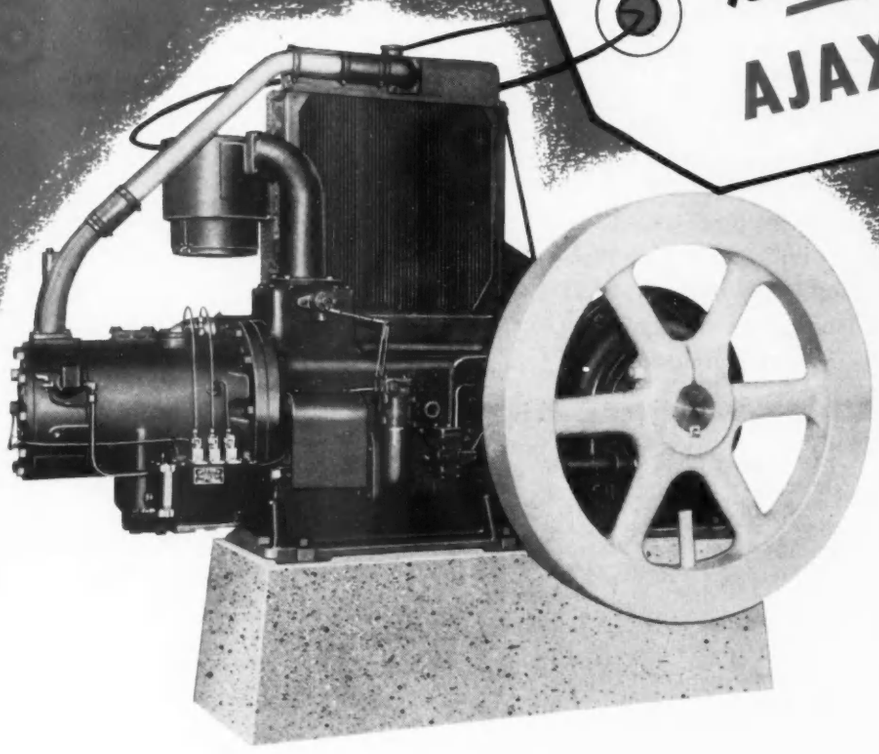
GEOLOGY OF THE FLANKS OF THE OZARK UPLIFT, Oklahoma Geological Survey, Bulletin 77, Norman, Okla., by George G. Huffman, $6.

The search for petroleum and natural gas in this region will be enhanced by the detailed mapping shown on the plates, the numerous measured sections and the precise stratigraphic material. It will also help ground-water supplies and the development of limestone resources.

About 12 man-years of field work and 25 of laboratory, drafting and writing went into the work of the geologists who made the data available.

The purchase price is NOT the cost!

AJAX OFFERS THE LOWEST ULTIMATE COST



DP-60, 9½" bore, 12" stroke. Recommended speed range 300 to 475. Rated BHP 60 at 475 RPM. Overall length 96½". Overall width 64¼". Total weight 6200#.

Thru-out oil land the smooth, true running Ajax fly wheels symbolize the cheapest and most dependable long life power in the oil producing business.

Simplicity in design — Finest craftsmanship in building — Best possible materials — add up to the lowest ultimate cost.

Horsepower with the broadest range of engine capacities for the greatest number of applications in the field . . . eight sizes, 12 to 115 useable HP.

Yes, they cost a little more . . . but the bonus features give more horsepower per dollar for a longer time. Many AJAX units have run 10 years and longer without even cylinder head removal.

AJAX

AJAX GAS AND OIL ENGINES

AJAX also builders of

Pressure Pumps Compressors

AJAX IRON WORKS CORRY, PENNSYLVANIA

OIL FIELD DISTRIBUTORS: The National Supply Co., Pittsburgh, Pa. • R. B. Moore Co., Bolivar, N. Y. • Bethlehem Supply Co., Tulsa, Oklahoma

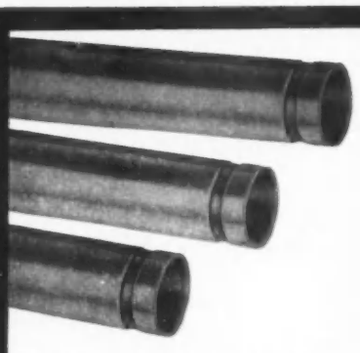
CUT COSTS WITH THE NEW

VIC-EASY®

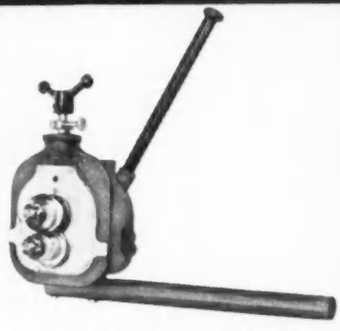
METHOD OF JOINTING LIGHTWEIGHT PIPE

SAVE UP TO 60% IN PIPING COSTS!

Now there's no need to buy overweight pipe. Thanks to Victaulic engineering, you can select lightweight pipe "job-rated" to your conditions and install it the *new VIC-EASY way*. You'll cut costs of pipe, transportation, and handling —you'll save from 30% to 60% in man-hour installation.



1. LIGHTWEIGHT PIPE in thicknesses from .065" handles high pressures. Leading mills make sizes 1¼" to 12", steel or aluminum, with *VIC-EASY roll-grooved ends.*



2. VIC-EASY PORTABLE GROOVER rolls grooves into pipe in seconds. Manually or power-operated, this groover removes no metal...retains full wall thickness.

3. VICTAULIC SNAP-JOINT COUPLING assembles and locks by hand—no wrenches or tools required. Other bolted styles of Victaulic Couplings alternately usable.

4. VICTAULIC FULL-FLOW FITTINGS team up with our couplings and lightweight pipe to provide a *complete VIC-EASY system*...cuts costs of installation *and* operation.

For complete information write for Bulletin GG2

VICTAULIC COMPANY OF AMERICA

P. O. BOX 509 • Elizabeth, N. J.

WHO'S MEETING WHERE

1959	
MAR.	
4– 6	API Division of Production, Southwestern District, Scharbauer Hotel, Midland, Texas.
16–19	AAPG, 44th Annual Meeting, Statler Hilton, Dallas.
17–21	NACE, National Meeting, Civic Auditorium, San Francisco.
19–20	SAE, National Production Meeting, Sheraton-Cadillac Hotel, Detroit.
25–27	API Division of Production, Southern District, Roosevelt Hotel, New Orleans.
31–Apr. 2	Power Conference, Illinois Institute of Technology, 21st American Power Conference, Hotel Sherman, Chicago.
APRIL	
5– 9	Nuclear Congress, Engineers Joint Council, Cleveland, Ohio.
8–10	API Division of Production, Eastern District, Spring Semi-Annual Meeting, Penn-Sheraton Hotel, Pittsburgh, Penn.
20–24	Petroleum & Chemical Industry Short Courses, Safety Engineering, University Downtown Center, Lockett Hotel, the University of Oklahoma, Norman, Oklahoma.
22–24	API Mid-Continent District Meeting, Herring Hotel, Amarillo, Texas.
26–28	TIPRO, 14th Annual Meeting, Baker Hotel, Dallas.
27–28	Petroleum & Chemical Industry Short Courses, Automatic Control, Oklahoma Memorial Union Building, University of Oklahoma, Norman, Okla.
27–28	SEG, 12th Annual Midwestern Exploration Meeting, Cortez Hotel, El Paso, Texas
30–May 1	API Division of Production, Pacific Coast District, Biltmore Hotel, Los Angeles.
MAY	
6– 8	API Division of Production Rocky Mountain District Meeting, Gladstone, Henning and Townsend Hotels, Casper, Wyo.
7– 8	Society of Petroleum Engineers of AIME, Permian Basin Oil Recovery Conference, Midland, Texas, site unreported.
15–25	International Petroleum Exposition, Tulsa, Okla.
27–29	14th Annual Short Course in Gas Technology, Texas College of Arts and Industries, Kingsville, Texas.

Nomads' Chapter monthly meeting: Los Angeles, second Wednesday, Jonathan Club, Wallace A. Sawdon, Secretary. Houston, second Monday, Ye Old College Inn, Harry E. Estes, Secretary. Dallas-Fort Worth, first Monday, Greater Dallas Club, Hank Davis, Secretary. Tulsa, Hotel Tulsa, Gilbert Swift, Secretary. New York, first Monday, Hotel Biltmore, Jesse E. Hickman, Secretary.

Reduce drilling costs... use DRISCOSE* low solids mud

Studies contrasting the drilling efficiency of low solids versus high solids muds show **increases in feet-per-bit ranging from 22 to 97%, and increased penetration rates from 26 to 48%.** It is understandable then that more and more operators are combating ever increasing costs with low solids muds . . . and specifically low solids muds formulated with High-Viscosity DRISCOSE. With this pure CMC material, you can make a mud containing a minimum of solids, yet possessing the necessary viscosity, wall-building properties, low gel strength, stability, etc.

A reduction in solids of 19.25 lbs. per bbl. can be obtained in mud with an apparent viscosity of 16 centipoises by using ¾ lb. of High-Viscosity Pure DRISCOSE and 5 lbs. of bentonite per bbl. of water. Normally, mud of this viscosity requires approximately 25 lbs. of bentonite per bbl. of water.

Technical data and literature . . . assistance on formulating low solids muds available upon request.

Four grades of DRISCOSE are available from your mud dealer: High Viscosity, Medium Viscosity, 70S High (all 99+% pure CMC) . . . and Technical Grade (72% CMC) of different viscosities.

The Proof is in Performance!

DRILLING SPECIALTIES COMPANY
Bartlesville, Oklahoma

*Driscose is a trademark for Sodium Carboxymethylcellulose.

PUMPING PROBLEMS SIMPLIFIED

with DARCOVA composition valve cups

DARCOVA valve cups are *the* truly texture-engineered cups that give you exactly the right composition for maximum pumping efficiency and cup life under varying conditions of depth, pressure, temperature, corrosion and abrasion.

Darcova valve cups are available in a complete range of sizes *and* types for your job, and assure maximum production with minimum down-time.

Send for Bulletin No. 5502 and specify DARCOVA at your supply store. There *is* no substitute.

DARLING VALVE & MANUFACTURING COMPANY

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WILLIAMSPORT 28, PA.

THE ORIGINAL COMPOSITION CUP

What's Happening among SERVICE and SUPPLY MEN

B. R. Dixon

G. D. Duke

Johnston Testers has announced the reorganization of Johnston's field offices into two divisions, each containing three areas. **B. R. Dixon,** formerly assistant to the president, will be the division manager of the northern division, with headquarters in Denver. The northern division contains the California, Rocky Mountain and Kansas-North Texas-Oklahoma areas. **G. D. Duke,** formerly assistant manager of field operations, will be the southern division manager with headquarters in Houston. The southern division takes in the Louisiana-Mississippi, Texas Gulf Coast and the West Texas areas. Dixon joined Johnston Testers in 1953 as a sales engineer. He was promoted to assistant sales manager in 1957 and to presidential assistant last summer. Duke joined Johnston Testers as a tester in 1946. He became, successively, manager of the Tyler district, the Houston district and then the Kansas-Oklahoma area. He was promoted to assistant manager of field operations in August 1958.

Floyd R. Anderson, administrative assistant of the Denver division of **Gardner-Denver Company,** has been named chief metallurgist of the firm. He will supervise metallurgical operations of all divisions of Gardner-Denver, both domestic and foreign. Anderson started his career with Denver Rock Drill Manufacturing Company in 1925 as a laboratory assistant. Denver Rock Drill merged with the Gardner-Governor Company, Quincy, Ill., in 1927, to become Gardner-Denver Company, which is celebrating its centennial in 1959. Anderson was a metallographist for Colorado Fuel and Iron Co., from 1931 to 1934, when he returned to Gardner-Denver as an assistant metallurgist. He was named to head the department in 1937.

Floyd R. Anderson

C. H. Dresser, Jr., has been employed as city salesman for **Milwhite Mud Sales Company** in Houston. Before joining Milwhite, he was with Cameron Oil Company on the West Coast and the Pan American Oil Company in Oklahoma City and Houston in their land departments. Dresser is a member of the Houston Landman's Association and the National Landman's Association.

C. H. Dresser, Jr.

E. A. McCoppin

Emmett A. McCoppin has been appointed district sales representative for the **Willis Oil Tool Company,** California, covering the southern Louisiana and Mississippi area, according to a recent announcement. McCoppin has been in the oil industry for the past eight years and is now making his headquarters in Baton Rouge.

H. U. Garrett has resigned as vice president of **U. S. Industries, Inc.,** so that he could pursue his personal business ventures. Garrett, a resident of Longview, Texas, founded the **Garrett Oil Tools, Inc.,** there in 1946. In the short period from 1946 to 1955, when the company was acquired by USI, sales had grown to $3 million. The company manufactures and sells gas lift equipment, lease automation systems, permanent completion equipment, valves and drilling equipment. Garrett is a member of the Houston Chapter NOMADS and the Independent Petroleum Association of America.

H. U. Garrett

Baroid Division National Lead Company has announced the appointment of **W. T. Sherman** as district superintendent with headquarters at Brownfield, Texas. **W. E. Pierce,** service engineer at Odessa, was transferred to Monahans, Texas, where he will serve as district superintendent. **Paul A. Newton** has been appointed store manager for Baroid Division at Beeville, Texas. Newton will also manage the company

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AXELSON SUCKER RODS

AXELSON NO. 77 SUCKER ROD is typical of the "quality-for-profit" features found in all Axelson equipment.

NO. 77 is the most versatile, popular, economical sucker rod available when you consider weight to strength. Applications range from very deep wells and high volume producers requiring high strength and stress range to dual and slim hole completions where strength and small diameters are required. With No. 77 you can often use a smaller diameter, lighter rod while maintaining the proper strength to meet production requirements. And, too, this weight reduction may allow a reduction in the size of the surface pumping unit.

NO. 77 is manufactured from a nickel-molybdenum alloy steel, fully normalized, tempered from end to end, and is treated to develop additional high strength for extremely heavy pumping requirements. Alloy content also aids in resistance to corrosion fatigue.

SUCKER ROD COMPARISON CHART

(ABRIDGED)

ROD TYPE		MANUFACTURER							
		AXELSON	BETHLEHEM	D & B	JONES	NATIONAL	NORRIS	OILWELL	TEXASTEEL
CARBON MANGANESE	GRADE	60	X2	#1CM	2	40	30	N	A
	YIELD	65/72	65M/72A	60/75	60/75	60/70	65/75	60/75	60/80
	TENSILE	90/105	93M/100A	90/105	90/105	90/100	95/105	90/105	90/100
1¼% NICKEL	GRADE	59	46	5	7	81	40	T	NM
	YIELD	70/78	67M/75A	70/92	65/80	65/75	65/75	73/97	65/80
	TENSILE	87/95	82M/90A	88/113	85/100	85/95	82/95	85/105	85/100
HIGH STRENGTH 3½% NICKEL	GRADE	79	—	Reliance	12	92	—	W	—
	YIELD	90/98	—	95/105	95/105	90M	—	105/115	—
	TENSILE	100/108	—	115/130	110/125	115M	—	115/125	—
LOW ALLOY	GRADE	77	43	Hi-Ten	8	85	75	Y	HT
	YIELD	100/115	100M/110A	95/110	100/115	105T	105/120	95/108	110/120
	TENSILE	120/130	120M/130A	115/130	120/135	133T	125/140	105/115	125/135

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REGULAR | SPIRAL GUIDE TYPE | HARDENED AND GROUND | SUB-COUPLINGS | AXITE

Write for illustrated sucker rod brochure

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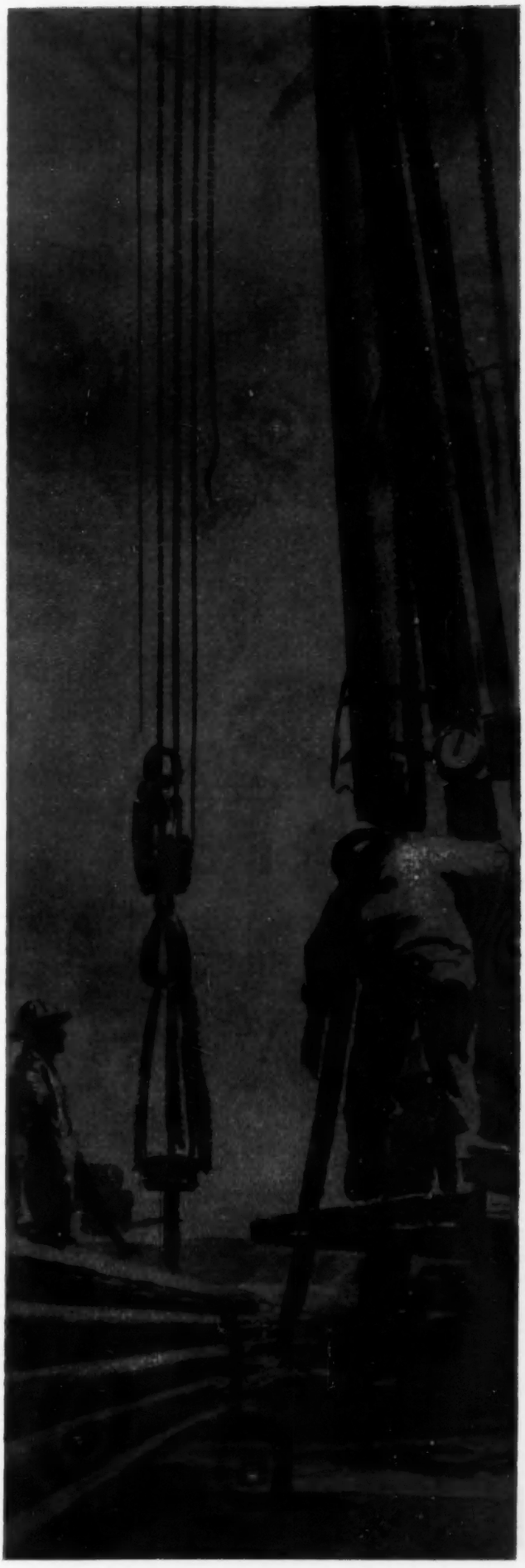

store at George West, Texas. **C. L. Apple,** formerly in Baroid's Louisiana Area at Lafayette, has been transferred and appointed sales representative for Baroid's Well Logging department at Houston.

Lou D. Cochran has joined **Rector Well Equipment Company, Inc.,** as sales and service engineer. Cochran will work in the Odessa area.

Schlumberger Well Surveying Corporation of Houston has announced the recent appointment and promotion of five men. **John T. (Johnny) Foster** has returned to Schlumberger as senior sales engineer in the Texas Gulf Coast Division at Houston. **W. H. (Bill) Throop** has been named location manager at Monroe, Louisiana. **Lee Petty,** formerly Division Sales Manager at Corpus Christi, has been promoted to district manager of that area. **A. Kane,** formerly manager at Fullerton, Calif., is now senior sales engineer at Los Angeles. **J. S. Baldry** of Abilene has been appointed as sales engineer for Schlumberger in Abilene.

Houston Oil Field Material Company, Inc., has announced the following transfers and promotions: **H. J. Bish** from district superintendent, Edinburg, Texas, to export division, to be stationed at Maracaibo, Venezuela, South America; **J. W. Caskey, Jr.,** from Rocky Mountain division superintendent to sales representative for the Western United States: **A. J. Flowers,** from warehouse clerk to assistant store manager, Casper, Wyo.; **Jack Hallonquish** from sales, Liberty, Texas, to sales, Farmington, N. M.; **George Haltom** from manager, machinery sales to assistant sales manager, Houston; **Wm. A. Hawthorne** from HOMCO International, South America, to division sales and service representative, West Texas division; **Warren Hollier** from Rocky Mountain division manager to division manager of sales and service, Casper, Wyo.; **Lester Long** from salesman to resident manager, Denver, Colo.; **George Rush** from district superintendent, Odessa, Texas, to district manager, Paris, France; **Jess Strickland,** from store manager to division sales representative, Casper, Wyo., and **J. B. Summer,** from Fishing Tool supervisor to district manager, Edinburg, Texas.

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"How to use three-phase motors on SINGLE-PHASE CURRENT"

. . . and profit from the added economy and efficiency!

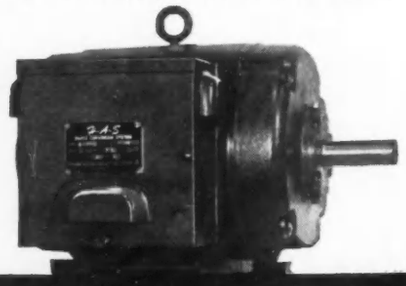
Three-phase motors cost less than single-phase motors, are more efficient, and have far greater salvage value.

The NEW H-A-S Phase Conversion System enables you to use three-phase motors (3 h. p. or larger) on 220 V single-phase current. Three-phase motors cost less, operate for less, and can be used later on three-phase current.

On many rural single-phase lines service is limited to 5 h. p. single-phase motors, but the H-A-S Phase Conversion System permits the use of three-phase motors up to 75 h. p.

The H-A-S is available in two models, for motor mounting and remote mounting.

This is GOOD NEWS in the oil country. To solve an immediate problem —or for your files—write NOW for complete details and the name of your nearest supply store or distributor!



KEN ELLIOTT MOTORS, INC.
P. O. Box 5158-B
BOSSIER CITY, LOUISIANA

H-A-S PHASE CONVERSION SYSTEM

Haskell (Inky) Wotkyns

Haskell (Inky) Wotkyns has been appointed special representative for the **American Iron & Machine Works Co., Inc.,** Oklahoma City. Wotkyns previously was executive vice president of Maloney-Crawford Tank and Manufacturing Co., Tulsa. Prior to that he was Mid-Continent sales manager of Abegg and Reinhold Co., Houston. Wotkyns, who will headquarter at the Thompson Building in Tulsa, will cover the entire mid-continent oil field area. He will work in both domestic and export sales.

Bovaird Supply Company has promoted **Ralph Enloe** of Shreveport, La., to district manager of the company's operations in the new district including Louisiana, southern Arkansas, Mississippi and Alabama. **Malcomb L. Sutton,** field salesman, has been made manager of the Bovaird Shreveport store. Both men have had long experience in the oil field supply business.

Burton McCollum

Robert H. Ray

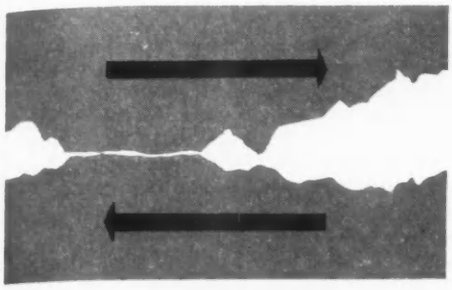
Burton McCollum, president of **McCollum Exploration Company** and a pioneer in the geophysical industry and **Robert H. Ray Geophysical Companies** will combine their talents to form **McCollum-Ray International, Inc.** Ray will be president of the new company and McCollum will be chairman of the board of directors. It is planned that this new company will bring the latest methods of seismic exploration to oil companies operating overseas.

Harvey D. Lowe has been elected vice president of **BrakeSol, Inc.,** Oklahoma City, it has been announced. Lowe has been general manager of the firm since 1950. His promotion was part of the expansion plan of BrakeSol which has involved several other changes in the sales department.

WHY VALVE LUBRICATION SAVES MONEY

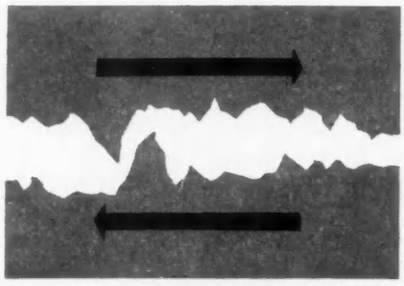
TROUBLE STARTS WHEN METAL RUBS METAL...

Under the microscope, metal that appears mirror-smooth to the naked eye shows as sharp mountains and deep valleys. This roughness, combined with the heat and pressure of metal-to-metal rubbing, causes valve trouble in the following ways:



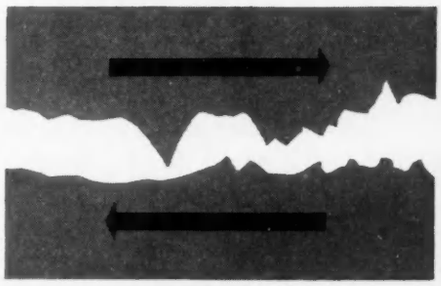
STICKING

"Cold Welding" occurs when friction or pressure welds the peaks together. The result: sticking.



SHEARING

The "hills" of one surface gouge into the hills of the other surface causing further sticking and scoring.

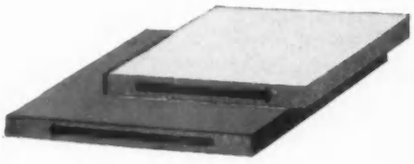


PLOWING

If one surface is even slightly harder than the other, the hard peaks act like a "plow". Leakage soon results.

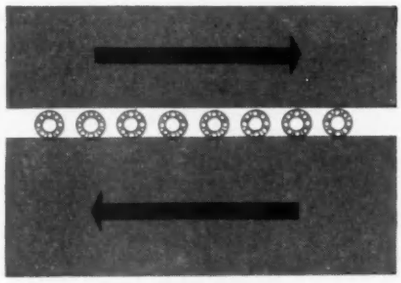
BUT, WITH ROCKWELL-NORDSTROM VALVE LUBRICATION...

metal-to-metal contact is eliminated. Here's what happens when metal-to-metal surfaces are lubricated:



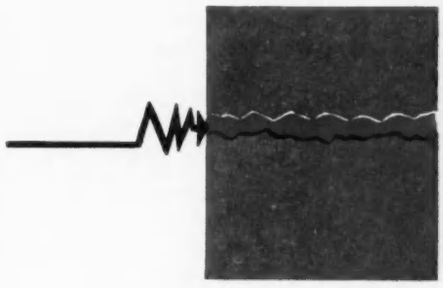
SLIDING

Lubricant prevents friction heat, eliminating danger of cold welding and assuring easy movement.



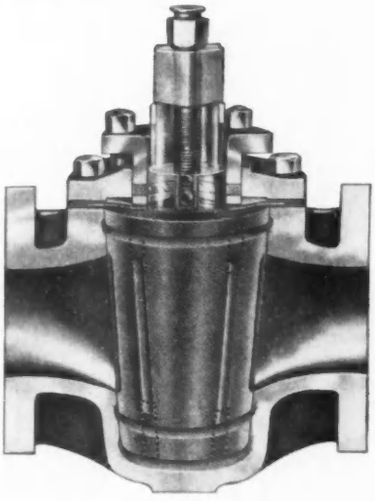
ROLLING

Lubricant becomes millions of tiny bearings . . . metal surfaces actually never come into contact with one another.



SEALING

Pressurized lubricant forms an impenetrable, continuous seal against leakage.



LONGER LIFE, LOWER COST, better valve service results when you specify Rockwell-Nordstrom lubricated plug valves. Notice in the drawing at the left how lubricant protects all the working surfaces and seals positively against leakage. Since lubricant eliminates adhesion, shearing and plowing, Rockwell-Nordstrom valves cost you less to use . . . year after year. Rockwell-Nordstrom valves are available in a complete range of sizes and pressure ratings to answer every flow control need. They cost no more to buy, often less, than ordinary valves. See your nearest supplier or write Rockwell Manufacturing Company, Pittsburgh 8, Pa. for complete details.

Canadian Valve Licensee: Peacock Brothers Limited

ROCKWELL-Nordstrom VALVES

it's **ROCKWELL**

MANUFACTURING COMPANY

GO through-tubing perforating

with the NEW

TORNADO JET

means

MAXIMUM PENETRATION MINIMUM DEBRIS

New design uses an explosive pellet in the hollow connecting stems. This assures complete disintegration of the entire jet gun assembly upon detonation.

PERFORMANCE:

Laboratory tests by a major oil company, shooting under simulated well conditions into Berea sandstone targets of approximately 300 millidarcy permeability, yielded the following results:

2⅛" O.D. 24 gram charge, spaced 2" from the target face

- Penetration— 7½ inches
- Well flow index 1.51 (151% of open core flow)
- Clean hole— no carrot plugging
- Excellent breakup of case and stem

1 11/16" O.D. 13.2 gram charge, spaced ½" from the target face

- Penetration— 6¾ inches
- Well flow index 1.37 (137% of open core flow)
- Clean hole— no carrot plugging
- Excellent breakup of case and stem

Explosive type spacer pictured at left allows charge spacing or skipped intervals as desired. Any length of blank spacers may be used with disintegrating explosive cord through the entire length to eliminate debris or bridging problems in such skips.

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SNYDER, TEXAS HI 3-6408	STILLWATER, OKLA. FR 2-7956	WICHITA FALLS, TEXAS 322-7502	HOUSTON, TEXAS HU 6-8013

Pat Curtin, Oklahoma City and Bill Ramsey, Pratt, Kansas, have been promoted to division treating engineers. Treating engineers recently added to the BrakeSol staff included Harry Morgensen, Oklahoma City; Bob Campbell, Healdton, formerly with Oil Well Supply; Preston Hanks, Midland, Texas, formerly with Aguaness and Ray Petete, Pratt, Kansas, formerly with Oil Well Supply.

Appointment of **Walter Curlee** as administrative assistant to **Arthur S. Marshall**, vice president - sales of **H. C. Smith Oil Tool Co.**, has been announced. For the past two years, Curlee has been chief industrial engineer for the company. He is a member of the Los Angeles Basin Chapter of the API and is a member of the San Gabriel Chapter of the American Institute of Industrial Engineers.

Walter Curlee

Mario J. Cueto

The appointment of **Mario J. Cueto** as vice president, export, of **Reed Roller Bit Company** has been announced. Cueto has had experience dating back to 1935 in foreign field operations and sales work. Cueto joined Reed in 1940 as a salesman trainee. He worked through successive positions to special sales representative, export sales, in Buenos Aires, which position he held at the time of his promotion earlier this year to sales division manager. Reed export division, with headquarters in New York. Just recently, Cueto was named export sales manager.

Hugh Q. Buck of Houston, general counsel of **Houston Oil Field Material Company, Inc.**, (HOMCO) for 17 years and well known in the oil industry has been named acting president of the company, it has been announced. Buck, who is partner in the Houston Law Firm of Fulbright, Crooker, Freeman, Bates and Jaworski will continue as a partner and serve as acting president until a new president is appointed.

Hugh Q. Buck

J. Gregory Tierney has been appointed sales representative in the Indiana, southern Illinois and western Kentucky territory for **Leschen Wire Rope Division, H. K. Porter Company, Inc.** Tierney has been with the City Engineers Department of Indianapolis as Superintendent of Maintenance for the Board of Flood Control Commissioners and has a background in heavy construction equipment.

PERFORATE TUBING IN THE WELL

KINLEY TUBING PERFORATOR

M. M. Kinley Company Licensees

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BEAUMONT, TEXAS
Assoc. Eng. & Eqpt., Inc.....TE 5-7046, ZF 8-2023
CABIMAS, ZULIA, VENEZUELA
Wireline Engineers, S.A.
CORPUS CHRISTI, TEXAS—Tolle, Inc...TE 5-5367
FORT MORGAN, COLORADO—C. A. White.....919
GLENDIVE, MONTANA—C. A. White...EM 5-3833
HOBBS, NEW MEXICO
Horne Well Service Co.....3-5396
HOUMA, LOUISIANA—Camco, Inc.....7330
HOUSTON, TEXAS
Assoc. Eng. & Eqpt., Inc.....CA 5-1103
HOUSTON, TEXAS
Mid-Western Well Ser. Co.....RE 4-4262
LAFAYETTE, LOUISIANA
Assoc. Eng. & Eqpt., Inc.....CE 5-6770
Camco, Inc. .....CE 5-3124
LIBERAL, KANSAS—Rainbo Service...Main 4-3598
MIDLAND, TEXAS
Lucecous Service & Eqpt. Co.....MU 2-1631
NEW ORLEANS, LOUISIANA
Assoc. Eng. & Eqpt., Inc.....VE 5-4983
ODESSA, TEXAS
Camco Wire Line Service, Inc.....FE 2-6497
OKLAHOMA CITY, OKLAHOMA
Rainbo Service Co.....ME 4-2131, ME 4-0105
PASADENA, TEXAS
Long Line Production Control.....GR 3-5739
PETTUS, TEXAS
Eddie Jones Eng. Co., Pettus 16, Beeville, FL 8-1218
SAN PEDRO, CALIFORNIA
Regan Forge & Eng. Co.....TE 2-5395
SHREVEPORT, LOUISIANA
Camco, Inc. 8-3615
VICTORIA, TEXAS—Camco, Inc.....HI 3-9521
WHITTIER, CALIFORNIA
Kline Wire Line Co.....OX 3-2781
WICHITA FALLS, TEXAS
Hudson-Eads, Inc....322-8584, 322-1792, 767-8727, 723-4690, 767-3793

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SINCE JANUARY 1, 1901

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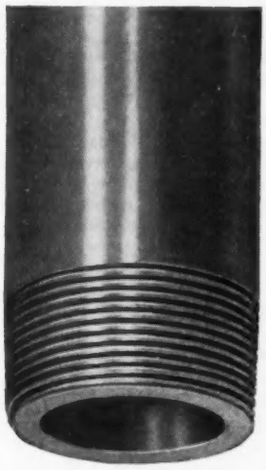
ORDER THROUGH YOUR SUPPLY STORE



for

- ✓ gathering systems, flow lines
- ✓ salt water disposal lines
- ✓ water supply systems for drilling rigs
- ✓ gas lines to 12″ diameter

Investigate Corrosion Proof

Van-Cor

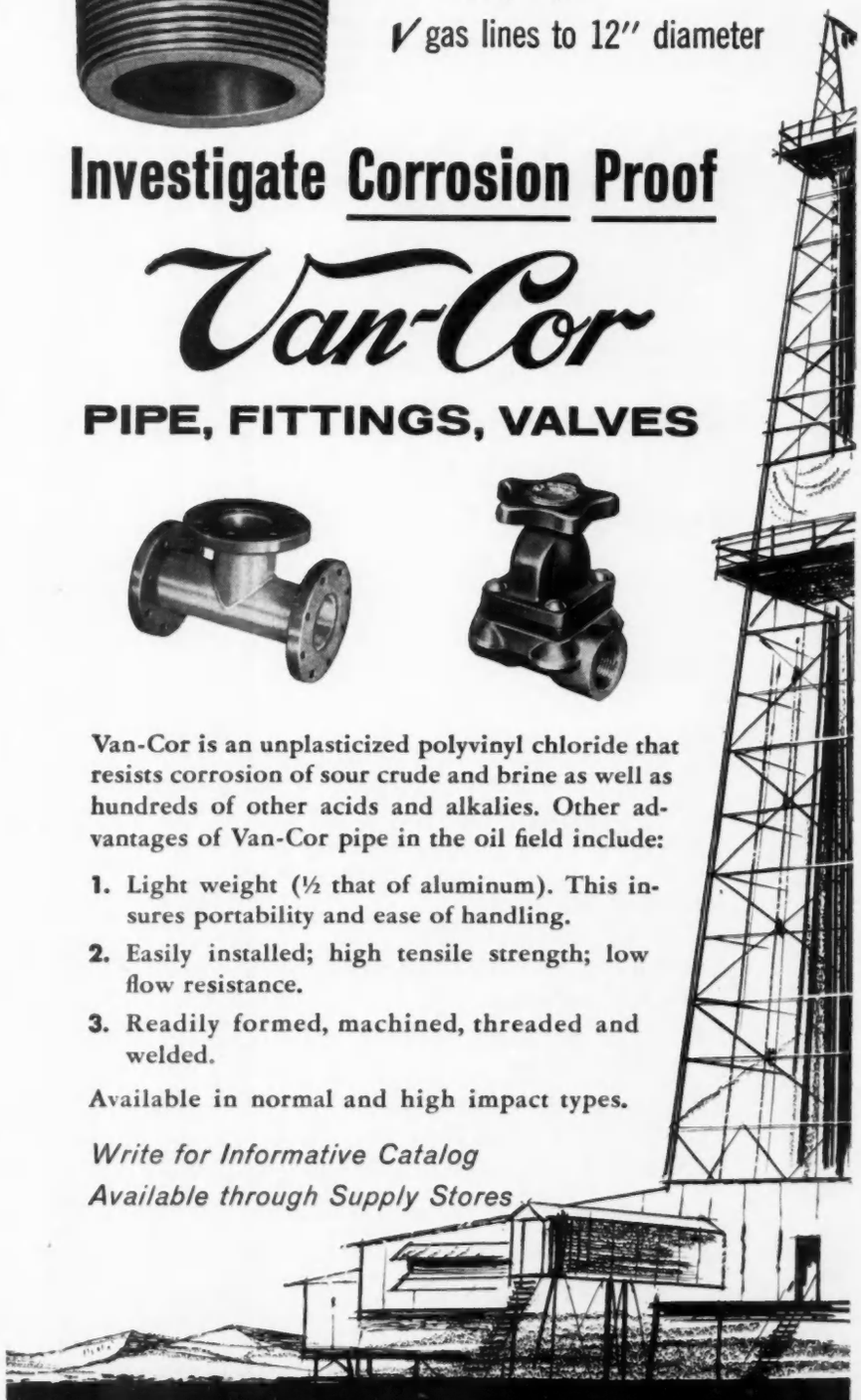
PIPE, FITTINGS, VALVES

Van-Cor is an unplasticized polyvinyl chloride that resists corrosion of sour crude and brine as well as hundreds of other acids and alkalies. Other advantages of Van-Cor pipe in the oil field include:

1. Light weight (½ that of aluminum). This insures portability and ease of handling.
2. Easily installed; high tensile strength; low flow resistance.
3. Readily formed, machined, threaded and welded.

Available in normal and high impact types.

Write for Informative Catalog
Available through Supply Stores



INDUSTRIAL DIVISION OF...

COLONIAL PLASTICS MFG. CO.

Subsidiary of THE VAN DORN IRON WORKS CO.

2685 EAST 79TH STREET CLEVELAND 4, OHIO

Louis W. Mason

James G. Morrison

Louis W. Mason was appointed sales manager—eastern area, and **James G. Morrison** was appointed manager—central area of the **National Tube Division of United States Steel Corporation,** it was announced recently. Mason, who succeeds the late Andrew P. Happer, will make his headquarters in New York, with supervision of National Tubes district sales office in Boston, New York, Philadelphia and Atlanta. Morrison, who succeeds Mason as central sales manager, will be located in Chicago and will be responsible for supervising National Tubes' sales offices in Chicago, Pittsburgh, Detroit and St. Louis.

Iverson Supply Company, Tulsa, has announced the promotion of **M. C. Niblack** to manager of sales department. This position was formerly held by **T. D. Collins,** who has resigned. Niblack has been with the company for over 12 years, and is well known throughout the oil industry. Other personnel changes announced by Iverson include: transfer of **John R. Bryant,** to city sales in Dallas from store manager, Snyder, Texas; transfer of **Paul D. Iverson, Jr.,** to city sales in Midland, Texas, from field sales, Kermit, Texas; promotion of **Peter C. Iverson** to store manager in Snyder from field sales, Snyder.

L. M. (Pete) Oaks has been appointed special representative, Fishing Tool and Wire Line Services for the **Canadian Division of McCullough Tool Company** and will make his office headquarters in Calgary, Alberta. Formerly district sales and service manager for Saskatchewan and Manitoba, Oaks has been with McCullough Tool for 15 years, the past 8 of which have been in Canada. Oaks will serve primarily as a consultant to the oil industry on fishing tool and electric wire line services.

L. M. Oaks

Kenneth C. Reed has been appointed associate editor of *The Magco Scene,* internal publication of the **Magnet Cove Barium Corporation.** Reed was formerly associated with Perkins Distributing Company of Houston as sales manager. Previously he was industrial editor for Houston Natural Gas Corporation.

Kenneth C. Reed

William C. McAfee

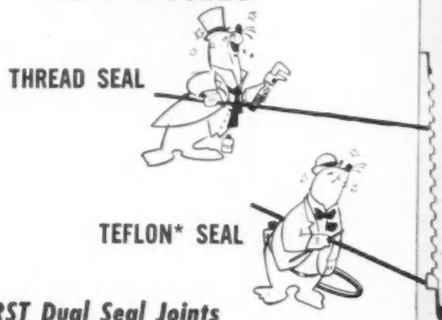
William C. McAfee has been appointed pilot for **H. C. Smith Oil Tool Company's** new Cessna 310 B twin engine plane. McAfee has a total flying time of over 8,500 hours, including more than 1,500,000 air miles in the United States, Canada, Alaska, Central America and the Caribbean areas. During World War II he was with the U.S. Air Force as a command pilot on B-17s and B-29s.

The **Axelson Division of U. S. Industries, Inc.,** has announced the promotion of eight district managers to the newly-created position of regional sales manager. Included in the promotions are: **C. W. Duplissey,** Gulf Coast; **L. E. Johnston,** Canada; **C. S. Kyle,** Kansas-Oklahoma; **P. I. Layman,** West Texas-New Mexico; **J. P. Nielsen,** Rocky Mountain; **P. A. Puckett,** Illinois-Eastern; **Dolph Witzel,** California, and **C. M. Worley,** Southern District.

Walker Well Heads, Inc., has announced the appointment of **Ideco, Inc.,** one of the Dresser Industries, Dallas, as exclusive export sales representative for their company. Manufacture of the Walker well head equipment is centered in Tulsa.

H-G — *NEW LEADER IN TUBING JOINT ENGINEERING FOR HIGH PRESSURE CONNECTIONS*

HARDY-GRIFFIN Tubing Joints are the FIRST Field Proved and Accepted New Design in a Decade

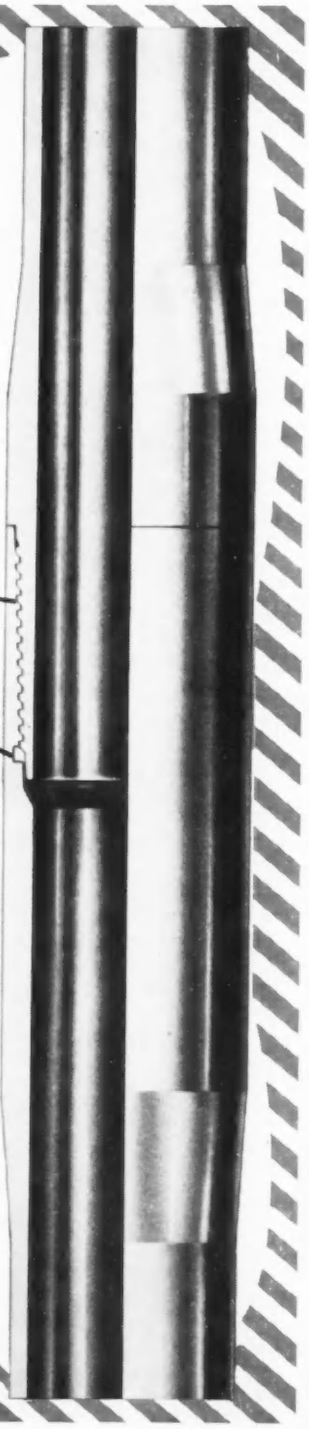


FIRST Dual Seal Joints (TEFLON Seal and Thread Seal)*

FIRST with 100% Plastic Coverage On All Connections, and

FIRST to be Specifically Designed for P-105 Tubing

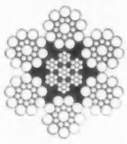
Ask your HARDY-GRIFFIN sales engineer about DUAL SEAL, the NEW Tubing Joint.



HARDY-GRIFFIN
ENGINEERING CORPORATION
A Division of Atlas Pipe Inc.
14522 South Main Street Houston 25, Texas
Phone: GYpsy 9-9250
Odessa, Texas — Phone: EMerson 6-8241
Farmington, New Mexico — Phone: DAvis 5-3211
*DuPont's Tetrafluoroethylene Resin

.. buy WICKWIRE ROPE

ROTARY DRILLING LINES



6 x 19 Seale Construction—"Wisscolay" Preformed
6 strands—19 wires to the strand
1 fiber core or 1 Independent Wire Rope Core (IWRC)

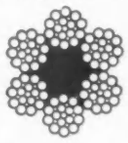
Wickwire's 6 x 19 Seale Construction with either IWRC or fiber core gives excellent service under severe conditions encountered in rotary drilling.

These ropes are supplied "Wisscolay" Preformed to provide better bending life over multiple-reeved blocks. The rope's relaxed condition also reduces whipping and allows more uniform winding on the drum.

The IWRC construction should be used if a line is subjected to crushing on the drum. This Wickwire construction provides maximum core support with a minimum of strand-to-core nicking. Crushing forces are uniformly transmitted to the very center of each strand. This allows the individual wires to resist displacement which occurs in some other constructions.

These ropes are available in three grades: Double Gray Extra Improved Plow Steel; Gray Strand Improved Plow Steel; Plow Steel.

CABLE TOOL DRILLING LINES



6 x 21 Filler Wire Construction
6 strands—21 wires to the strand
1 fiber core

This construction was adopted by Wickwire for Cable Tool Drilling. The size and number of outer wires provide the ideal balance between resistance to abrasion and ability to withstand bending over sheaves.

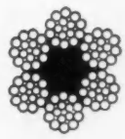
The steel which goes into Wickwire drilling lines is carefully selected and every subsequent stage of manufacture is closely controlled. Drilling lines are an item of considerable expense to the drilling contractor and this careful quality control assures the users of longest possible rope life.

The fiber core used in Wickwire Cable Tool Drilling Lines is also specially selected to withstand the rigors of this very severe wire rope application.

Wickwire 6 x 21 Cable Tool Drilling Lines are available in three grades: Gray Strand (Improved Plow Steel), Plow Steel, and Mild Plow Steel.

OTHER WICKWIRE ROPES FOR OIL FIELD USE

"WISSCOLASTIC" DRILLING LINE

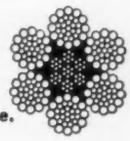


6 x 21 Filler Wire Construction
6 strands — 21 wires to the strand
1 fiber core.
Increased elasticity provides faster, smoother drilling, better absorption of shock loads, less vibration and whipping.

SAND AND CORING LINES

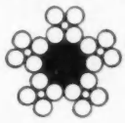
6 x 7 Construction—"Wisscolay" Preformed
6 strands—7 wires to the strand
1 fiber core.

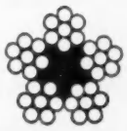
TUBING, SUCKER ROD OR WINCH LINES



6 x 31 Seale Construction
"Wisscolay" Preformed
6 strands—31 wires to the strand
1 fiber core or 1 Independent Wire Rope Core.
Recommended for better winding and increased freedom from twisting.

TORPEDO LINES





"Wisscolay" Preformed

5 x 5 Construction
5 strands—
5 wires to the strand

5 x 7 Construction
5 strands—
7 wires to the strand

TUBING OR SUCKER ROD LINES

18 x 7 *Non-Rotating* Construction
"Wisscolay" Preformed
18 strands—7 wires to the strand
1 fiber core.
Designed so a single part line can pick up an unguided load without causing load to spin. Outer and inner layers are twisted in opposite directions to counteract rope's tendency to unlay under pressure.

TAPERED DRILLING LINES

To eliminate excessive weight, lines are small at tool end and larger at drum end to support weight of cable and tool. Individually designed and manufactured to specific requirements. Write for information.

SOLID PLASTIC CORES

A core made from a specially developed plastic is available in Wickwire Drilling Lines which are required to operate under unusually severe conditions. This core is highly resistant to the damaging effects of acids and other corrosive fluids frequently encountered in the oil and gas fields.

CF&I

LOOK FOR THE YELLOW TRIANGLE

Note: Wickwire manufactures Extra Improved Plow Steel rope under the name Double Gray. This rope, with a catalog breaking strength 15% higher than the catalog breaking strength of Improved Plow Steel ropes, is recommended for applications where maximum tensile strength is the prime requirement. Wickwire achieves this high strength with no loss of fatigue resistance or other important qualities.

PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
THE COLORADO FUEL AND IRON CORPORATION

THE COLORADO FUEL AND IRON CORPORATION—Albuquerque • Amarillo • Billings • Boise • Butte • Denver • El Paso Farmington (N. M.) • Fort Worth • Houston • Kansas City • Lincoln (Neb.) • Odessa (Tex.) • Oklahoma City • Phoenix • Pueblo Salt Lake City • Tulsa • Wichita • **PACIFIC COAST DIVISION**—Los Angeles • Oakland • Portland • San Francisco • San Leandro Seattle • Spokane • **WICKWIRE SPENCER STEEL DIVISION**—Boston • Buffalo • Chattanooga • Chicago • Detroit • Emlenton (Pa.) New Orleans • New York • Philadelphia

5779

Robert G. Allen, former vice president of **Bucyrus-Erie Company,** South Milwaukee, Wis., was elected president in charge of all operations. The announcement was made after a recent board of directors meeting. The board simultaneously announced the election of **Victor C. Studley** as vice president in charge of finance, succeeding **Frederick C. Weiblen** and the election of **John R. Warner** as vice president in charge of purchasing. Studley also continues in his present post as treasurer.

Robert G. Allen

H. R. Langford is now West Coast district representative at San Francisco for the **Bucyrus-Erie Co.'s** drilling division. **Lewis O. Black** has been appointed manager of domestic sales, South Milwaukee, Wis.

John R. Smith, formerly corrosion engineer for Dowell, Inc., has joined **Tretolite Co.,** division of **Petrolite Corporation** as corrosion engineer in the South Louisiana district, Lafayette, La.

Ross A. Pfaff has joined the staff of **World-Wide Instruments, Inc.** of Houston. Pfaff will head the firm's mechanical engineering, research and design department.

Douglas Owen was recently appointed to the position of executive vice president in the **Alberta Phoenix Tube & Pipe Ltd.,** Edmonton, Canada.

B. H. Pickard was recently elected president of **Tuboscope Company International.** Tuboscope Company International is a subsidiary of **Tuboscope Company,** Houston. Pickard was chosen to head the expanding world-wide operations of the new firm Tuboscope, International to successfully direct the future growth of the company on an international basis. In addition to Tuboscope's present overseas activities in Arabia and Iran, bases of operation are being planned in Western Europe, South America and the Far East.

B. H. Pickard

Tom S. Moughon, formerly with Unit Rig Co., Inc., as manager of its South Louisiana district, has joined the **Brewster Co.,** Shreveport, La., as project engineer.

The appointment of **M. H. Mettee** as sales manager of **American Cyanamid Company's** Dyes department was announced. Mettee, who assumed his post December 1, will have over-all responsibility for the marketing of all dye products of the company. He will report to **J. H. Naylor,** manager of the Dyes department. His office will be in the department's headquarters at Bound Brook, N. J.

F. H. Ford of Clark Bros. Co., Olean, New York, was elected vice chairman of the gas turbine group of the National Electrical Manufacturers Association at their 32nd annual meeting in Atlantic City. Ford is assistant manager of the marketing department, turbines, of the company's Turbo Product Division.

Three major personnel changes within **Gardner-Denver Company** have been announced. **Charles M. George,** secretary, has been elected vice president and general manager for operations of the two plants at the firm's headquarters here. **Aubrey H. Jones,** vice president and director of the export division, has been elected president of Gardner-Denver International, C. A., a new subsidiary formed to promote and expand the company's international operations, including manufacturing, licensing, purchasing and sales. **Kenneth J. McDaniel,** director of personnel, has been elected secretary.

K. J. McDaniel

Oil Country Equipment Co., Inc., of Houston, announces several major changes among top-level personnel, including the election of **C. Wayne Shively** as chairman of the board. **Oran W. Brooks** was elected president. As president he succeeds **M. F. Wright,** who resigned to become president of **Pathfinder Products, Inc.,** Bastrop, Texas. The board also announced the election of **W. B. Duncan** to the position of executive vice president in charge of sales. Officers re-elected were Secretary-Treasurer **Marvin K. Swofford** and Assistant Secretary-Treasurer **Ralph B. Lee.**

THE ORIGINAL

PORTA-KAMP
HOUSTON

Trademark

pioneers of collapsible, portable, field housing.

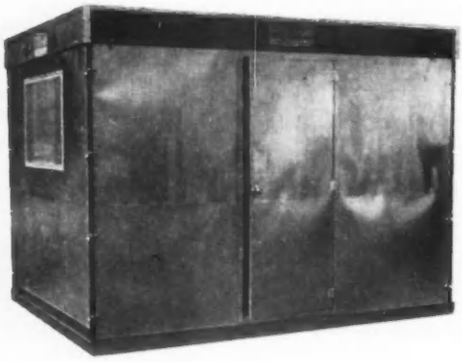
USED WORLD-WIDE.

Can be erected in 15 minutes!

Model D-1-C

Model D-1-C $585 FOB plant
Size 10′ x 10′

- **Shipping case size— 40″ x 10′ x 14″**
- **Weight—550 lbs.**
- **Also available in size 10′ x 20′, model 2D-1-C**
- **Costs less than tents— let us prove it!**



Model K-10

$995 FOB plant
Size 8′ x 10′

- **Fully insulated**
- **Join several units together**
- **Weight—950 lbs.**
- **Shipping case size— 8′ x 10′ x 15″**

PORTA-KAMP now offers:

- **Custom designed buildings to your specifications, extra heavy duty, steel skid mounted, collapsible buildings.**
- **Complete camp outfitting, including all miscellaneous supplies.**
- **Export crating.**

COMPARE COSTS!
Write for free literature today.

PORTA-KAMP MFG. CO., INC. P. O. BOX 7064 HOUSTON 8, TEXAS

A. P. I. CASING COUPLINGS

Short and Long, sizes 4½" through 13⅜". All threads 8 round, ¾" taper tapped per foot. Combination and sharp V thread casing couplings also available from stock.

A. P. I. LINE COUPLINGS

Sizes ⅛" through 12", 14" and 16" O.D. Black and Galvanized. Recessed, Taper Tapped ¾" per foot.

A. P. I. TUBING COUPLINGS

Non-Upset sizes 1.900" through 4½". Upset sizes 1.660" through 4". Grades J-55, N-80 and P-105.

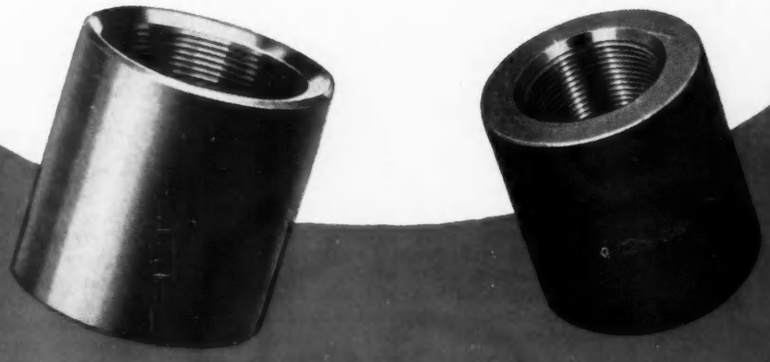
ALL SIZES AND TYPES OF

COUPLINGS

FOR THE OIL INDUSTRY

STANDARD MERCHANT

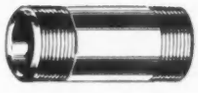
Black and galvanized. Sizes ⅛" through 6".



3000# and 6000# FORGED STEEL COUPLINGS

Manufactured to ASTM specification A-#105. Available in full and half couplings. 3000# sizes ⅛" through 4". 6000# sizes ⅛" through 3".

USE WITH THESE DEPENDABLE CAPITOL FITTINGS

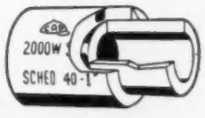


NIPPLES

UNIONS

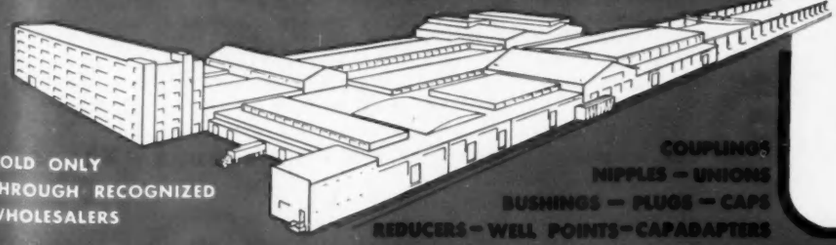
SQUARE HEAD PLUGS

HEX HEAD PLUGS



SOCKET WELD COUPLINGS AND CAPS

PRODUCERS OF QUALITY FITTINGS FOR MORE THAN 30 YEARS



SOLD ONLY THROUGH RECOGNIZED WHOLESALERS

COUPLINGS
NIPPLES — UNIONS
BUSHINGS — PLUGS — CAPS
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CAP CAPITOL

MFG. & SUPPLY CO.

COLUMBUS, OHIO

INCREASE PRODUCTION

CLEAN OUT CHOKING SAND

Excessive sand and sediment holds back your oil. For fast, easy clean out with fewer round trips and less down-time, use world famous Miller Sand Pumps.

SAND PUMP SIZES
O.D.—2½, 3, 3½, 4¼, 5, 5½, 7 in.
Lengths—20, 25, 30 ft.

Composite Catalog, Page 3400

Write for descriptive price list

MILLER SAND PUMPS

Miller Sand Pump Co.
General Offices, Box 4516
Oklahoma City 9, Okla

EXPORT OFFICES
30 Rockefeller Plaza
NEW YORK CITY 20, N. Y.

for **leakproof, pressure-tight connections**

use **TiteSeal®**

SEALING COMPOUNDS

Heat and vibration-proof, non-solvent, will not shrink, crack or crumble. Makes all assemblies leak-proof and pressure-tight. Prevents rust, corrosion, joint seizure.

7 BASIC BLENDS

LIQUID WRENCH®
The super-penetrating rust solvent

LOOSENS
rusted bolts, nuts, screws, 'frozen' parts

Liquid Wrench works *fast*... yet is absolutely safe for all metals and alloys.

2171

At Industrial, Automotive, Hardware, Plumbing Jobbers

SOLDER SEAL

RADIATOR SPECIALTY CO.
Charlotte, North Carolina

Rolo-Bethlehem Supply Division Agreement Reached

Top officers of the Rolo Manufacturing Company and Bethlehem Steel Company, Supply Division, gathered in Houston to participate in the consummation of an agreement whereby Rolo products will be distributed by Bethlehem. Left to right are J. V. Spalding, general manager of sales and C. H. Seger, Jr., assistant vice president and treasurer of Bethlehem's Supply Division, Tulsa; C. R. Zimmerman, vice president of Bethlehem, Tulsa; R. K. Franklin, president of Rolo, Houston; W. M. Boren, vice president of Rolo, Houston, and R. O. Branyon, Bethlehem's manager for Rolo Products Sales, Houston.

Bethlehem Supply Named Rolo Mfg. Distributor

An agreement to distribute products of the Rolo Manufacturing Company through Bethlehem Steel Company's Supply Division was announced jointly by the two companies recently.

Robert K. Franklin, president of Rolo with headquarters in Houston, said that all oil well meters, gas dehydrators and other oil and gas production units manufactured by his company will be available through Bethlehem Supply's 66 oil country stores and offices.

C. R. Zimmerman, vice president of Bethlehem's Supply Division, Tulsa, said his firm will assign 15 specialists to Rolo for training after which they will return to district offices and stores to supervise sales, installation and service of Rolo equipment.

A pioneer in crude oil metering equipment, Rolo produces a complete line of wellcheckers, oil and water meters, metering separators, free water knockout units, calcium chloride gas dehydrators, custody transfer meters and various types of line meters.

Bethlehem's Supply Division with its 300 sales and service representatives is a major distributor of oil country goods, handling types of drilling, production and processing equipment in addition to its own engineered specialty items.

Cleaver-Brooks Acquires Springfield Boiler Company

Cleaver-Brooks Company, manufacturer of packaged boilers, Milwaukee, Wis., has acquired the 68-year-old Springfield Boiler Company, Springfield, Ill.

President of Cleaver-Brooks, J. C. Cleaver revealed that the transaction necessitates the investment of $1 million by his firm, $500,000 for the purchase of the business with an additional $500,000 to cover working capital requirements.

John W. Hobbs, chairman of the board of Springfield Boiler, stated that he had been eager to place the plant and its future in the most secure hands he could find.

New Representative Announced By Macco Oil Tool Company

Macco Oil Tool Company appointed the L. A. Christopher Company as representatives in the Rocky Mountain area for sales, service and design of Macco gas lift installations. The L. A. Christopher Company maintains offices in Denver and Durango, Colo.

Corrosion Rectifying Company Completes East Texas Project

Corrosion Rectifying Company has announced the completion of the installation of 60 well casing rectifier-type cathodic protection systems for the Pan American Petroleum Corporation near Henderson, Texas.

It was further announced by Wayne A. Johnson, president of Corrosion Rectifying Company, that it was one of the largest projects of its type ever installed in the East Texas field.

T. E. Mercer Trucking Firm Completes San Jacinto Project

The T. E. Mercer Trucking Company has announced the completion of the firm's new Houston Yard and Terminal on the San Jacinto River. W. D. Davis will continue as terminal manager.

Mercer's Houston Yard was originally located on the Phillip's Adam's Terminal in Pasadena, Texas, where 30 acres of storage space will still be maintained.

Harold Brown Company Announces Expansion Plans

The Harold Brown Company has announced plans for expanding present plant facilities slightly more than 50 percent. It is reported that a new addition, including ground floor coverage and a complete second floor, will be constructed at the firm's present plant and home office facilities in Houston.

Several employes will be added at the firm's plant and office as a result of the expansion.

SQUEAKS from the BULLWHEEL

WORLD OIL

"Who sent over this new drill team?"

Every Man's Fancy

The middle-aged farmer came home with a new 18-year-old wife. He asked his eldest hired hand what he thought of her. The old man shook his head slowly. "Well, she's a mighty purty young lady, all right."

"Then what seems to be the trouble?"

"Oh, there ain't no trouble, Boss. It's just that I hate to see a man start out on a day's work so late in the afternoon."

Bank Notes

Woman: "Son, can you direct me to the bank?"

Small boy: "Yassum, for a quarter."

Woman: "Isn't that mighty high?"

Small boy: "No ma'am, not for a bank director."

Passing Parade

When I was 21, I was Eager, Ambitious and Full of Fire. Now I am 41, I am Pooped, Patient and Pfrightned.

Modern Living

"My new development," confided the real estate broker, "will have swimming pools and playgrounds for the children, tennis courts and softball diamonds for the grownups, not to mention neon street lighting, a shopping center and continuous bus service."

"Wonderful!" said his friend. "What type of homes are you building?"

"Darn," said the broker after a short silence, "I knew I'd forgotten something."

Wine, Women and Huh-huh

Doctor: "You're in bad shape. You'll have to give up wine . . ."

Joe: "All right. Doc."

Doctor: "And women."

Joe: "Okay."

Doctor: "And . . ."

Joe: "Stop, Doc, stop! I can't live without my banjo."

Making Tracks

A man in Alaska was arrested for bigamy. He had a wife in Nome, another in Fairbanks and still another in Juneau. The judge looked at the culprit and sternly asked, "How could you do such a thing?"

To which the bigamist replied, "Fast dog team."

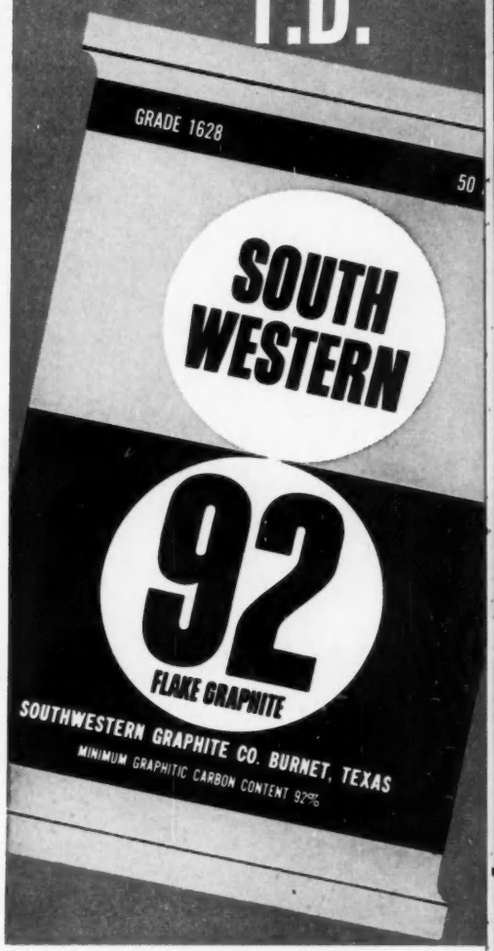
Psychology

The young man looked at the high prices on the night club menu and said to his date, "What will you have, my plump doll?"

Filthy Rich

Then there was the wealthy Texan who bought two Cadillacs and took his change in Volkswagens.

SLICKEST WAY TO T.D.



USED AND RECOMMENDED

. . . *especially* under conditions where TORQUE, DRAG, OR THE HAZARD OF STICKING DRILL-STEM AND CASING are encountered.

FIVE YEARS OF FIELD EXPERIENCE

have proved the effectiveness and versatility of

SOUTHWESTERN 92 FLAKE GRAPHITE

Available through your mud dealer.

SOUTHWESTERN GRAPHITE CO.

BURNET, TEXAS

Up on the monkey-board

IT'S nerve-tingling work standing on a monkey-board, 100 feet up on a derrick, grappling with a 90-foot length of 4½-inch drill pipe. A job like this calls for a qualified derrickman!

Doesn't the same hold true with tubular materials? Doesn't the job of searching far beneath the earth's surface call for *qualified* materials that can stand up under severe twisting action, fatigue and collapse—materials that are designed to drill deep today . . . deeper tomorrow?

That's why USS National Seamless Oil Country Tubular Products are acknowledged the world over as the most ideal materials for deep-well work. They *have* the strength and dependability to do any oil country job. Their outstanding strength can be attributed to not one, but two vital factors—quality steel and a quality control method of manufacture. Each seamless tube is pierced from a solid billet

of steel
and of t
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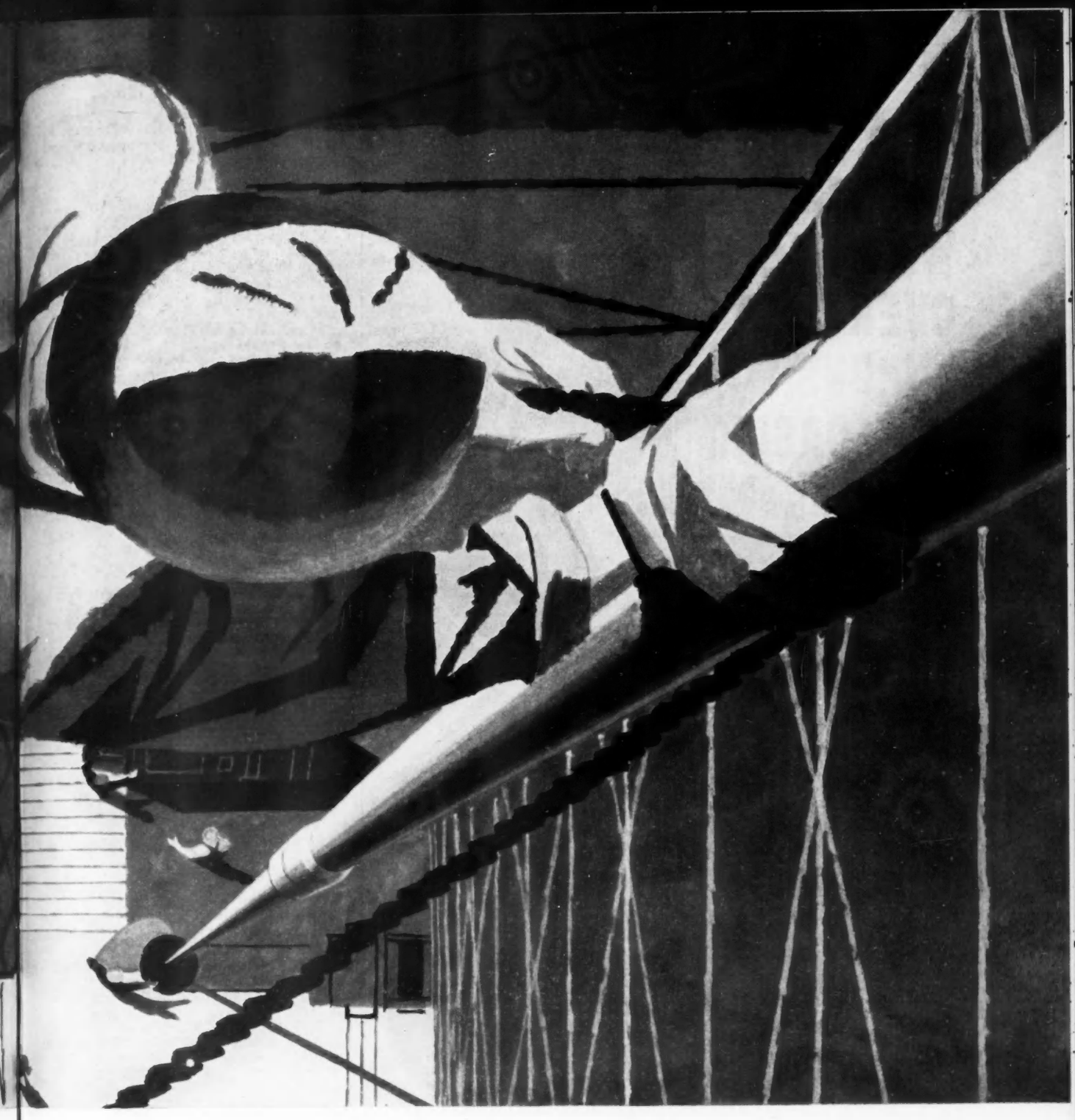

of steel. And only steel of the very best forging properties and of the highest uniformity can be used, since the modern piercing operation tends to seek out any defects in the metal.

For drill pipe, casing and tubing that can really *take it*—products that will consistently give you the most service *per dollar invested*—remember to specify USS National Seamless Oil Country Tubular Products . . . every time.

For further information, write to National Tube Division, United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa. Export distributors: United States Steel Export Company, New York.

USS and National are registered trademarks

National Tube Division of USS **United States Steel**

HOW OLD HOLE WAS DEEPENED OVER 1000' THROUGH 5½" CASING

HYCALOG

with V-Door bits PATENT APPLIED FOR

CONTINUING RESEARCH FOR LOWER COST DRILLING

Drilling through small diameter casing in a recent Mississippi deepening program demonstrated further the economy of using HYCALOG V-DOOR diamond bits.

In the run from the old total depth of 10,109' to the new completion depth of 11,200' only three 4 11/16" bits were required. The first, going in the hole on Nov. 23 made 385 feet through shale in 93 hours, averaging 4.4 feet per hour. The second, gnawing its way through 513 feet of shale, anhydrite and sand, averaged 3.6 feet per hour. The third completed the well on Dec. 7 after making 193 feet at an average of 4.8 feet per hour in hard sand and shale in the Rodessa formation.

The three diamond bits replaced many times that number of conventional bits, *yet cost no more* . . . the number of trips was reduced proportionately, . . . rate of penetration was exceptionally good . . . and, in spite of the small diameter at that depth, it was a clean operation without any down time.

This is just one of a number of such records set by HYCALOG V-DOOR *bits. Why not let* V-DOORS *set a record on your next drilling program?*

Hycalog, Inc.

505 AERO DRIVE
SHREVEPORT, LOUISIANA

BRANCH OFFICES IN PRINCIPAL OIL PRODUCING AREAS

DIAMOND CORING • DIAMOND BITS • WELL LOGGING • CORE ANALYSIS

$64,000 Question

The bright pupil looked long and thoughtfully at the second examination which read: "State the number of tons of coal shipped out of the United States in any given year." Then his brow cleared and he wrote: "1492—none."

Life Is Tough All Over

A staggering drunk slipped and fell in the curb just as a middle-aged couple was passing by. From his position in the gutter, the drunk questioned, "Shay . . . could you tell me where I could find Alcoholics Anonymous?"

"Why, I'd be glad to friend, what do you want to do . . . join?"

"No," replied the drunk struggling to his feet, "thought I'd better just go and resign."

Swindle Top

Mining-stock promoter: "Where can I hide? The police are coming!"

Chief Clerk: "Get inside the filing cabinet. I defy anyone to find anything there."

Room Service

Said the visitor at the country hotel: "Boy, dash up to room 65 and see if my raincoat is hanging behind the door. Hurry, because I have a train to catch."

In a few minutes the boy returned: "Yes, sir," he said, "It's there behind the door just like you said."

The Big Freeze

"Johnny," said the minister to one of his small parishioners, "every time I hear you swear, a cold chill runs down my back."

"Gee!" said Johnny, "If you had been at our house the other day when dad caught his finger in the door, you'd have frozen to death."

Now Hair This

Man Shopper: "I want some invisible hair nets for my wife."

Clerk: "Here you are sir. That will be 25 cents."

Shopper: "Are you sure they are invisible?"

Clerk: "Invisible! Why, I've been selling them all morning and we've been out of stock for two weeks."

It's Getting Late

"Why does your grandmother read the Bible so much?" one little girl asked the other little girl, who said, "I think she's cramming for her finals."

Just Add Water etc.

A large crematorium was doing a lively business. One day the manager discovered that the closets were overloaded with cans of ashes. Curious about this he asked the custodian the reason for saving them.

"Why, we send them to Africa and sell them," he was told.

"How can you sell ashes?" he wanted to know, thinking maybe he'd missed out on a good thing.

The answer was, "The cannibals buy them . . . as instant people."